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HIGHWAY CONSTRUCTION AND MAINTENANCE

Bituminous Binders and Oils in Construction and Surface Treatment—Their Use More Economical than Plain Macadam—Cost of Maintenance—Specifications for Oil—Work in Two States

THE report of the work done by the Division of Highways of the Maryland Geological and Economic Survey during the two years ending Jan. 1, 1910, as prepared by Mr. W. W. Crosby, the chief engineer, shows a gratifying amount of work done on an extremely small appropriation by the Legislature. The work done and the conclusions reached have, in general, been similar to that in other States. This work has to a considerable extent consisted in giving advice and State aid under the "State Aid to Highways" law, and in work upon a State road between Baltimore and Washington. Like other highway commissions, this one has investigated the character of binders now on the market in an attempt "to secure such information as would enable it to prescribe with certainty such characteristics for a binding material as would be most suitable for the conditions that exist, or are likely to exist, in Maryland." As the department maintained no chemical laboratory it arranged with a local one for such chemical analyses as it desired. In order to test various road materials about four miles of road were constructed using a number of different materials. "From the laboratory investigations it was evident that certain materials were unlikely to give satisfactory results and such materials were rigorously excluded from the work. Only such materials as seemed from their analyses to promise successful results were used." This test road was completed such a short time before the end of 1909 that results cannot yet be given.

Especial emphasis is given in the report to the matter of maintenance, pointing out that this is necessarily more expensive, if properly conducted, than has been generally realized, and that prompt repair generally makes for economy. "Massachusetts originally expected the annual maintenance of her modern roads to be about \$100 per mile, and for years did keep it at about that figure. Of late years the demands have steadily risen, and now the estimate for the maintenance of the roads built before the influx of automobile traffic reaches \$300 per mile according to the latest figures of Chairman Parker. It is easy, therefore, to see how, if the maintenance can be reduced to the original figures by so doing, considerable increase in first cost may be justified." The above figures do not include any allowance for such general resurfacing of the road as is usually necessary at intervals of from three to twenty years, according to local conditions; they cover only the regular patching and cleaning of macadam, cleaning of ditches, mowing of grass and weeds, etc.

"It is absolutely useless to go to the expense of constructing modern roads unless it is expected to maintain them in as good (or better) condition as on the day they are finished. * * * A serious matter in this connection is the promptness—or lack of it—with which the necessary repairs are performed. Few road officials seem to realize the importance of prompt action

in attending to even apparently small matters of maintenance, and frequently repairs are so postponed that the final expense is doubled or multiplied many times. A glaring instance of the increase in cost of maintenance by temporizing or postponing the work is shown on a road subjected to heavy travel of all kinds, where in 1908 the estimate of the cost of necessary repairs to it was \$14,000 and in 1909—nothing having been done in the meantime—the revised estimate was \$34,980. Of this difference of nearly \$21,000 fully \$10,000 could have been saved by performing the work promptly in 1908. Another road in the same locality could have properly been repaired in 1908 at a cost of \$150. In 1909 \$348 were spent on it, and there is every reason to believe that the expenditure required in 1910 will not be less than \$450. Had the work been properly done in 1908 at least \$600 could have been saved."

Concerning the use of surface binders and bituminous macadam, Chief Engineer Crosby makes the following report: "It will probably be possible to satisfactorily maintain the ordinary macadam already laid by surface applications of bituminous materials. It probably would be more economical, however, if hereafter such macadam as is to be laid on this road were impregnated with this bituminous cement at the time of its construction. The cost of incorporating the cement with the stone at the time of placing the latter, while it materially increases the cost of the surfacing, is not much greater than the cost of properly applying the cement to a finished water-bound macadam, and yet the results are conceded to be much better and more economical in the long run under traffic conditions such as exist here. The cost of incorporating the proper bituminous cement with the macadam at the time of construction of the latter may be estimated as within 25 cents per square yard (\$2,000 per mile) additional to the cost of ordinary macadam, and the expense of thereafter maintaining the road for an indefinite period at \$100 per mile per annum. If the bituminous cement is omitted from the construction, the maintenance of the road will probably require an expenditure of at least \$500 per mile per annum." The road here referred to is the State road between Baltimore and Washington.

The work already done on this State road includes 30 miles of surveys, 23¾ miles of plans and estimates and the letting of contracts for 20 miles. The construction work already completed includes 14 bridges and 62 culverts, and the completion of 18.86 miles and the partial completion of 1½ miles in addition; leaving about 10 miles on which no work has yet been done. Work on roads which has been done under the State aid law includes about 700,000 square yards of macadam, about 125,000 square yards of surfacing with other materials of various kinds; also the application of 22,957 gallons of bituminous material to the surface of macadam roads.

OILING ROADS IN NEW YORK STATE

Extracts from the Report of the New York State Commission of Highways for 1909.

The use of asphaltic oil for preserving macadam roads throughout the State of New York, which was tried in almost every county in the State, in 1909, has been generally satisfactory and as a method of preserving macadam roads which have already been constructed and which are in comparatively good condition may be said to be a very successful treatment. Roads which would have been entirely destroyed by the end of the season are preserved and will go into the winter in good condition. The use of oil and covering is especially effective in preventing raveling. Many of the roads in the State of New York have been constructed with stone which has no special binding qualities and which have heretofore raveled badly during the hot months of the summer. A number of these roads were treated with asphaltic oil during the past summer and have given absolutely no trouble in this respect since the application. In most cases where the oil described in the following specifications was applied, it was applied cold during the hot months. In some cases it was found necessary, especially in the fall of the year, to heat this oil. The oil was delivered in tank cars and pumped into oilers which were especially constructed for the purpose of distributing oil. A portion of road No. 241, running from Ballston Springs to Saratoga Springs in Saratoga county was treated with this oil early in June. The remaining portion of the road was treated with a heavier oil, viz., New York State binder No. 1, and covered with gravel to a depth of about $\frac{3}{4}$ inch. Both portions of this highway have been subject to extremely heavy automobile traffic during the year and both sections were in exceptionally good condition this fall. While the portion covered by the heavy binder perhaps had little penetration, a surface coat was formed over the macadam which protected the roadway. The treatment with the heavier grade of asphaltic oil and covering is considerably more expensive than the treatment with the oil which can be applied cold. Time will demonstrate whether or not this form of repair work will or will not be the cheapest in the long run. One of the principal reasons for the selection of the treatment of the roads with a grade of oil which could be applied cold was the fact that this treatment was about the only treatment which would come within the appropriations available. It has been generally considered that the macadam surface to be treated should be absolutely dry. In a number of instances very good results have been obtained where the oil was applied when the road was damp, but not wet or muddy. (In some cases this condition occurred after rain; in one or two a sprinkler was used before the oil was applied.) Greater penetration was obtained and less cover was needed and the final results were even better than many cases where the oil was applied to a dry surface. One of the most important points to be observed in this surface treatment or so-called painting method is that the surface should be swept as clean as possible. This can best be done by the use of a rotary horse sweeper.

The cost of this treatment varies greatly with cost and amount of material used, freight rates, etc. Experience has shown that for a sixteen-foot roadway approximately 3,700 gallons of oil should be used to the mile or about $\frac{4}{10}$ gallons per square yard. This amount will depend somewhat upon the character of the stone in the roadway, some stone affording better penetration than others. The above figure of 3,700 gallons to the mile on a sixteen-foot roadway may be said to be a fair average. If an excess quantity of oil is used it will require more covering material, which will unite with the oil forming a thick cover which is inclined to rut and become sloppy in bad weather. The cost is also greatly increased and no advantage gained. It will require approximately 75 to 100 cubic yards of covering for the above application. The following may be considered an average estimate of the cost of the oil treatment upon one mile of sixteen-foot roadway.

3,700 gallons oil at 4c. F. O. B. station.....	\$148.00
Applying 3,700 gallons of oil at $1\frac{1}{2}$ c. per gallon.....	55.00
100 cubic yards covering (gravel, screenings or three-quarter stone at \$1.75 delivered on the road)....	175.00
Sweeping	14.00
Sanding after oiling.....	30.00
Total	\$422.00

This equals a cost of $4\frac{1}{2}$ c. per square yard.

The covering selected for this class of treatment should be of a gritty nature, free from dust. If gravel is used it should be of a superior quality, free from loam or dust. Gravels containing shale or slate should particularly be avoided. A very large portion of the gravels of New York State are unsuited for this work.

The oiling done last year was performed under the following specifications:

Specifications for Oiling

OIL TO BE APPLIED AT AIR TEMPERATURE

The oil shall be delivered in barrels directly upon the work or in tank cars at some convenient railroad station near the work.

The road to be treated shall be carefully swept until it is thoroughly clean and no dust or foreign matter remains upon the surface. The greatest care should be exercised in doing this work not to displace the stone on the top course.

The oil shall be delivered on the road and applied cold.

The machine used in applying this oil shall be of such construction that the amount to be applied can be regulated and spread on the road in a thin sheet.

The apparatus for applying this oil shall be provided with a thin slot which can be opened to any desired width, or with holes of varying size and staggered so that the entire width of the strip will be covered at the same time.

The apparatus shall be provided with proper valves so that the flow can be regulated by the operator.

The amount to be applied shall be — gallons per sq. yd.

The oil shall be allowed to penetrate into the road for from three to five hours, depending upon the temperature and condition of the road treated.

For repair work after the oil has been applied, the ruts or any depressions shall be completely filled with $\frac{3}{4}$ stone or stone which will pass a $1\frac{1}{2}$ -in. ring and be retained on a $\frac{1}{2}$ -in. ring. This stone shall be tamped into the ruts thoroughly and allowed to absorb or become coated with oil in the depressions.

A good grade of fine gravel or screenings, from which the dust has been removed, shall be spread over the road to a depth of at least $\frac{1}{2}$ inch. The road may then be thrown open to the traffic.

The oil shall be of heavy grade, fulfilling all the requirements enumerated below:

1. It shall be free from water or decomposition products.
2. The various hydrocarbons composing it shall be present in homogenous solution, no oily or granular constituents being present.
3. The specific gravity at a temperature of 77 deg. shall not be lighter than 22 deg. Baume.
4. When evaporated in the open air at a temperature not exceeding 500 deg. F., until 65 per cent of residue remains, the residue shall not be so hard as to show a penetration less than 10 millimeters when tested for five seconds at 77 deg. F., with a No. 2 needle weighted with 100 grams.
5. When evaporated in the open air at a temperature not exceeding 500 deg. F., until 55 per cent of residue remains, the residue shall be so soft as to show a penetration more than 10 millimeters when tested for five seconds at 77 deg. F., with a No. 2 needle weighted with 100 grams.
6. Twenty (20) grams of it, upon being maintained at a uniform temperature of 325 deg. F. for five hours in a cylindrical vessel $2\frac{1}{2}$ inches in diameter by 2 in. high, shall not lose more than 15 per cent in weight.
7. Twenty (20) grams of it, upon being maintained at a uniform temperature of 400 deg. F. for five hours in a cylindrical vessel $2\frac{1}{2}$ in. in diameter by 2 in. high, shall not lose more than 25 per cent. The character of the residue shall be smooth and nearly solid when cold, but not so hard that it may not be easily dented with the finger, and when soft it shall pull to a long, thin thread.
8. It shall be soluble in chemically pure carbon disulphide at air temperature to the extent of at least 99.5 per cent.
9. It shall be soluble in 76 deg. Baume petroleum naphtha air temperature, to the extent of not less than 75 per cent and not more than 92 per cent. When 20 cc. of a naphtha solution obtained by treating 1 gram of the bituminous material with 100 cc. of cold naphtha is evaporated upon a glass plate, the residue shall be adhesive and sticky and not merely oily.
10. It shall not show more than 10 per cent of fixed carbon.



HEATING HEAVY GRADE ASPHALT OIL AND PUMPING TO SPRINKLER BY HAND

11. It shall show a flashing point (N. Y. State closed oil-tester) of more than 300 deg. F.

12. It shall not contain more than 1.5 per cent of paraffine scale, the Holde method of determining paraffine scale being used.

The oil was applied at the rate of from $\frac{3}{10}$ to $\frac{1}{2}$ gallon to the square yard and was covered after allowing for a period of three to four hours' penetration with from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch of screenings with the dust removed, $\frac{3}{4}$ -inch stone, Lyon Mountain tailings or the best grade of gravel obtainable in that vicinity. Experience has demonstrated that it is very necessary to obtain a high grade of covering for the oil after this application. In many cases the gravel has not proved entirely satisfactory. The use of stone screenings with the dust removed and three-quarter-inch stone has given very satisfactory results. The use of Lyon Mountain tailings which are the refuse produce of the ore mines situated on the D. & H. railway in the northeastern part of the State has also proved very satisfactory. The material to be suitable for this purpose should be gritty. It is not essential that material should have any particular binding qualities. The success of the oil treatment depends largely upon the skill of the application. It is, of course, important to have first class materials, but the manner of application is also just as important. The use of asphaltic oil and cushion preserves the road from rapid deterioration and eliminates the dust nuisance.

The above grade of oil or similar oil has been furnished by the Standard Oil Company, Indian Refining Company, Gulf Refining Company, and the Texas Oil Company. Approximately 1,400,000 gallons of this grade of oil have been applied to roads during the season. Approximately 380 miles of macadam highways have been oiled with a surface treatment during the year.

DISPLAY LIGHTING IN MISHAWAKA

In our issue of August 11, 1909, we gave a brief description of the new lighting standards which had been adopted in Mishawaka, Ind., by the Business Men's Association. The president of that association at the time was Mr. John A. Herzog, who has since been elected Mayor; largely, it is said, because of the credit which he received from the citizens for the establishment of this lighting system. A delegation of officials and business men from Ft. Wayne visited the city a few weeks ago to obtain ideas concerning the adoption by that city of some similar method of display lighting, and were greatly pleased with the system at Mishawaka. The standards there are 14 feet high and each corner standard carries five tungsten lamps, one 100-watt lamp above the post and four 40-watt lamps at sides, and on the intermediate posts are a top lamp and two side lamps. These posts cost \$50 apiece, and the entire cost to each merchant has been \$1.07 per front foot. Mishawaka at the present time has twenty blocks lighted by these ornamental standards, sixteen of which are on Main street and two on each of two branch streets; and additional standards are being set from time to time. The wiring for these is put underground in conduits of iron pipe laid under the gutter. About \$10,000 has been spent upon the system to date.

CITY HALL FOR KANSAS CITY

A PUBLIC administration building is proposed for the joint use of Kansas City, Kan., and Wyandotte County, which shows some unusual features both in outward appearance and in interior planning. It is seen by the illustration to be free from the towers which form such a prominent feature of most of the city halls of the country. As designed, approximately 40 per cent of this building will be used by the city and 60 per cent by the county. The first floor is intended for the use of those officials of both city and county which are visited by the greatest number of citizens. These include the clerk of the district court, registrar of deeds, probate judge and his court and marriage room, juvenile court, county surveyor and coroner. Also, of municipal officials, the election commissioner, city treasurer, license inspector, city clerk, city physician, and ample quarters for the police department and police court.

On the second floor are located the offices of the county treasurer, auditor, clerk, county commissioners, assessors, commissioner of the poor, superintendent of schools, sheriff and auditor. Also the city engineer, superintendent of buildings, plumbing inspector, water and light departments, park commissioners, city legal department and claim agent. On the third floor are five court rooms, each accommodating at least 200 spectators. On this floor also are the rooms for the mayor and city commissioners and for their meetings.

Above the third floor, under the roof, would be the county jail, with kitchen and other accessories, reached by private elevators connecting with the sheriff's office and the courts. In the basement would be the police hold-over, storage rooms, engines for lighting, heating and operating the elevators, etc.



CITY HALL AND COUNTY COURT HOUSE FOR KANSAS CITY, KANS.

The total ground area of the building is 25,500 square feet, the total superficial floor area for the county departments 56,580 feet and for the city departments 37,585 square feet. The corridor space is $16\frac{1}{2}$ per cent of that devoted to the uses above indicated.

The architect of the building is Wm. W. Rose, of Kansas City.

OZONE STERILIZATION IN PARIS

WE have referred two or three times during the past year or two to the experiments conducted in Paris on the sterilization of water by de Frise's system. We have recently received a letter from Mr. de Frise informing us that the Municipal Council of Paris, on Dec. 28th last, authorized the administration to arrange with him for the sterilization, by the de Frise-Sieman's system, of ten million gallons per day of filtered water from the river Marne. The investigations made of the system by the chief engineer of the city of Paris and by one of the municipal councilors apparently demonstrated that the cost of treatment by this method was about two-thirds cent per 1,000 gallons, or about \$6.67 per million gallons.

There can be no question of the efficiency of ozone in effecting a very high percentage of bacterial destruction in filtered water. And apparently the chief, if not the only, obstacle to the more general adoption of this method is that of its cost. Considering its many advantages it is hardly to be doubted that modern ingenuity before long will remove this obstacle. We hope within a few weeks to present a description of two or more installations of ozone sterilizing plants in America.

POLLUTION OF NEW YORK HARBOR

Prevalence of Bacteria in Various Portions—Sewage Pollution in Water and Mud—Serious Contamination Only Local—Float Experiments

By KENNETH ALLEN,
Engineer, Metropolitan Sewerage Commission
(Concluded from last week.)

WORK OF THE FIRST METROPOLITAN SEWERAGE COMMISSION

The work of the first Metropolitan Sewerage Commission extended through the year 1907 and comprised, in addition to studies of the bacterial and chemical condition of the water, examinations of the mud bottom and observation of the currents. The data collected were considerable in amount, but time was not available for their complete tabulation, and their digestion was left to be done by the present commission the following year. In one respect this was unfortunate, as it is always better that the original investigator should complete his work and draw his own deductions, presenting his reasons therefor; but as there was not a complete change in the personnel of the commission it is thought that all essential facts were recorded and that any inferences drawn were with an adequate knowledge of the related circumstances.

The work this year may be considered in the following classes:

1. Analyses of water samples for bacteria.
2. Analyses of samples of harbor bottom for bacteria.
3. Presumptive tests for *B. coli* in water.
4. Presumptive tests for *B. coli* in mud.
5. Chemical analyses of the water.
6. Chemical analyses of the mud.
7. Float experiments to determine tidal currents.

I. ANALYSIS OF WATER SAMPLES FOR BACTERIA

Seven hundred and fifty-five samples of water were examined for bacteria, taken from 188 different points, in the vicinity of sewer outlets, across the rivers and bays and along their channels. They were collected at different depths ranging from the surface to 100 feet. Surface samples were generally taken a few inches from the top to avoid any floating scum. The numbers found may be stated in a very broad way as follows:

In the channels	from 1,000 to	10,000 per cc
Near a sewer outfall in South Brooklyn.....	808,000	" "
At the head of Gowanus Canal.....	625,000	" "
In Wallabout Bay	25,500	" "
In Newtown Creek	106,000	" "
In Newark Bay	69,000	" "
In the Hudson off Spuyten Duyvil (least number).....	150	" "
In the Lower Bay at depth of 100 ft.....	300	" "
In the Lower Bay at surface same point.....	900	" "
At Narrows at depth of 85 ft.....	180	" "
At Narrows at surface same point.....	1,600	" "

The numbers decreased from Spuyten Duyvil going up the Hudson and south in the Harlem, from the Battery toward the ocean and from the upper toward the lower ends of Newark Bay and Gowanus Canal. In Newtown Creek, however, the highest number were found near the middle and not where the pollution is densest, possibly on account of the inhibitive

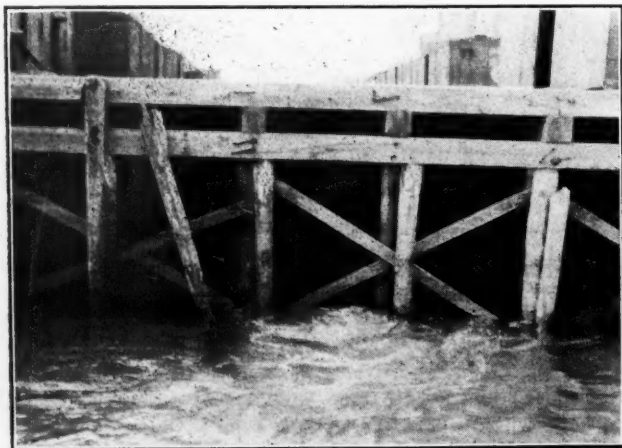


FIG. 1—SEWER OUTLET UNDER DOCK

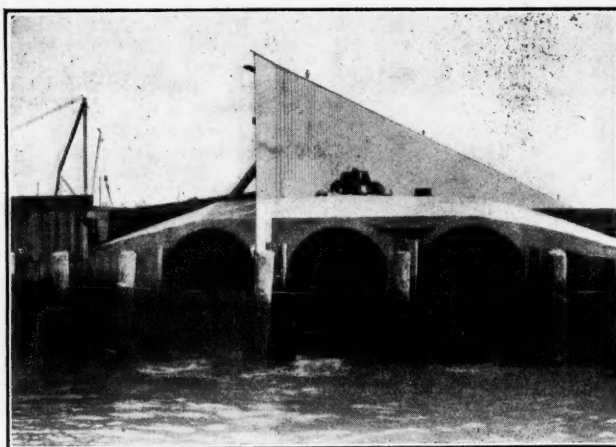


FIG. 2—TRIPLE SEWER OUTLET, BROOKLYN

effect of trade wastes upon their growth. In general the numbers were least in summer and greatest in the fall and winter.

Sept. 11.	An average of samples from Newtown Creek	5,500 per cc
Oct. 7-10.	The same point.....	36,000 " "
Feb. 27.	The largest number found in Gowanus Canal during flood tide at Hamilton Ave.	32,000 " "
Sept. 1.	During flood tide at the same point....	17,000 " "
Oct. 1.	During ebb tide	97,000 " "
Aug. 5.	" "	16,000 " "
Aug. 5.	Gowanus Bay	13,000 " "
Oct. 1.	Same point	64,000 " "
June 11.	Near South Brooklyn shore, flood tide	808,000 " "
Feb. 4.	Same point, ebb	3,080 " "
Aug. 5.	" "	78,000 " "
	" "	8,300 " "

From a consideration of the various counts together with other observations it was thought that a fair interpretation of the results would be as follows:

Conditions where bacteria are less than 1,000 per c.c. call for no immediate remedy.

Where numbers range between 10,000 and 100,000 per c.c. pollution is heavy, sometimes accompanied by discoloration and an unpleasant odor.

Where the range is above 100,000 the conditions are apt to be offensive.

It was found that generally the numbers diminished with the depth, with but half as many at a depth of 20 ft. as at the surface, but the variations from this rule were numerous. The numbers, too, increased from the channels toward the shores.

It seemed probable "that the bacteria which are discharged with sewage do not find conditions in the harbor waters favorable to their existence and expire rapidly. It is likely that the sewage bacteria do not, except under certain and probably abnormal and restricted conditions, multiply in the water, but perish after what must be considered a brief interval. It would seem, therefore, that the harbor is not like a cesspool in which bacterial multiplication is a leading feature. Either the sewage in the harbor is disposed of in other ways than by bacterial action or the bacterial action is very rapid."

2. ANALYSIS OF SAMPLES OF THE HARBOR BOTTOM FOR BACTERIA

Seven hundred and five samples were taken from the bottom at 371 localities. In 73 cases they were from borings to different depths. These were from the Hudson at Yonkers to the ocean and also in Newark Bay. The bacteria given are as "contained in one gram of material dried at a temperature of about 100 degrees centigrade."

The largest count was from Gowanus Bay.....	26,000,000
The smallest counts from the surface were from Ambrose Channel and off Hoffman Id., each.....	7,500
The smallest count below the bottom was off Constable Hook at a depth of 12 ft. 8 in.....	4,000
The smallest count was from a dredging scow in Ambrose Channel	2,800
The greatest variation in neighboring samples was from Gowanus Bay.....	400,000 and 19,000,000

These figures show the bacteria to be at least 400 times as numerous in the mud bottom as in the adjacent water. The samples were generally black, except where washed by strong currents, and were putrefactive, emitting H_2S after remaining a few days in a corked bottle. Extensive deposits of this

nature were noted south of Governor's Island and in parts of the western side of the Upper Bay. The numbers were high in those muds as well as in the vicinity of large sewers.

Subsurface borings were made in the Gowanus Canal, on the east and west sides of the Upper Bay, near Staten Island, and in the Harlem River. The deepest went to a depth of about 14 feet. The object of these was to determine the pollution rather than the depth of the mud. In about 60 per cent of the borings the bacteria decreased with the depth. In the other borings the reverse held. In these cases the average increase was 142 per cent, the greatest, near Bayonne, 700 per cent. The greatest decrease, near Constable Point, was from 74,000 to 5,000.

In the Harlem the counts were greatest in the grossly polluted section between 152d Street and Randall's Island. Large numbers were also noted from the subsurface muds near Black Tom, Liberty and Ellis Islands.

3. PRESUMPTIVE TESTS FOR B. COLI IN WATER

Three hundred and forty-four samples of water from 120 different localities were tested for coli. All surface samples gave positive results, and in but nine of these were the results negative with 0.1 c.c. The greatest depth from which positive results were obtained with 0.1 c.c. was 50 ft., in the East River; one positive result with 1 c.c. was found at 60 ft., but none at a depth of 100 ft.

In general, therefore, it may be said the B. coli may be found anywhere above the Narrows, although in decreasing numbers from the surface down.



FIG. 3—BATHING NEAR OUTLET. SHOWN IN FIG. 4

4. PRESUMPTIVE TESTS FOR B. COLI IN THE HARBOR BOTTOM

Three hundred and twenty-two analyses were made from muds collected from 243 localities. But seven surface samples failed to give positive results: three in the East River, one in Newtown Creek and three in the Lower Bay. In all, 32 samples were taken from the Lower Bay, of which 10 gave positive results with 0.1 c.c. and 19 gave positive results 1.0 c.c. but negative results with 0.1 c.c. It was concluded that coli might be found in any of the surface material forming the bottom of the rivers or bays near New York.

Twenty-five other tests were made from samples taken from depths up to six feet below the bottom. Those from the Harlem River generally gave positive results with 1 c.c. down to 6 ft. below the surface of the bottom, but not always with samples as small as 0.1 c.c. In Spuyten Duyvil Creek the only positive results obtained were with 1 c.c. of surface material.

Coli were generally found in the material underlying the bottom, but more particularly in those portions most obviously contaminated by neighboring sewers, etc., although in several very foul localities positive tests did not result.

5. CHEMICAL ANALYSES OF THE WATER

Evidences of contamination were sought by chemical tests. These included the determination of free and albuminoid ammonia, chlorine, loss on ignition, color and turbidity.

Forty-five samples from near the South Brooklyn shore and

two from the Hudson near Pier A were analyzed for free ammonia. The lowest amount, 0.005 per million, was 10 ft. below the surface off Fifty-second street, Brooklyn, and the highest, 1.65 parts per million, from between the piers at Forty-ninth and Fifty-third streets. Both samples were taken in January. An average of 24 samples collected throughout a day and night at different depths was 0.011, the average for surface samples alone being 0.013. It is not clear why these amounts were so much lower than would naturally be expected.

The samples off Pier A gave 0.167 on the flood and about the same on the ebb tide. In three cases in which samples were taken near Forty-ninth street, Brooklyn, where the free ammonia one or two ft. from the surface was over 1000 per million, the decrease with the depth below the surface was marked, falling at 20 ft. from 1.54 to 0.224, 1.65 to 0.158 and 1.005 to 0.380 respectively. In a number of cases there was a slight increase toward the lower depth, but the general inference drawn was that the surface water was most polluted. The information from the free ammonia determinations was not, however, believed to be so reliable as that gained in other ways.

The same samples were analyzed for albuminoid ammonia. This was found to range from 0.014 parts per million at depths of 10 and 20 feet off Fifty-second street to 1.94 parts off Fifty-ninth street, Brooklyn. These results were, however, believed to be from too few samples to afford a reliable indication of the pollution of the several localities.

Analyses for chlorine, taken in connection with previous

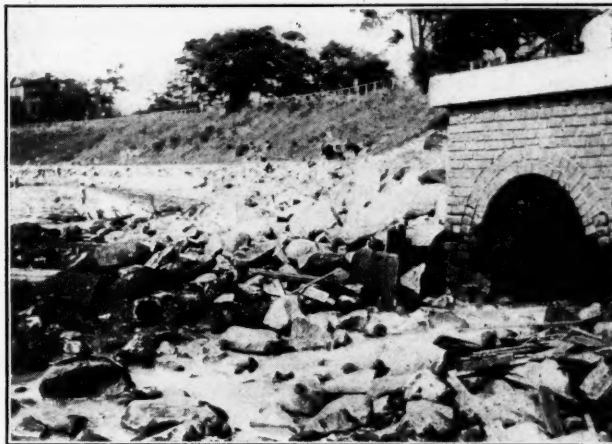


FIG. 4—SEWER OUTLET IN THE LOWER HARBOR

work of this kind, was more enlightening, especially on the admixture of the sea water with that from the several sources of fresh water. Eight hundred and two samples were analyzed from different depths as far down as 100 feet. The water near the bottom generally showed the higher figures, although the mixture was quite thorough at the Narrows, in the Kill von Kull and the East River. In the Upper Bay, Hudson and Harlem the difference was more marked. "During a freshet in the Hudson River the water at the mouth of that stream . . . was nearly four times as salt at the bottom as at the top. . . . Yet the water at the surface was by no means fresh." Considerable variations in samples taken but a short distance apart indicated a disinclination for currents of different salinity to mix freely.

The loss on ignition was determined for 130 samples by evaporating to dryness, weighing and then driving off the volatile matter by heat—two series from Newark Bay and one from the Gowanus Canal. The results were lowest for the waters near the head of the bay and that of the canal, and also from the samples taken near the surface—results in opposition to those obtained in other ways, and it was not thought best to attach importance to them.

Nine hundred and seven color determinations were made under different conditions. Some results were as follows:

Gowanus Canal	60
Atlantic Basin	120
Wallabout Channel	65

Newtown Creek	1300
65th St., Brooklyn	30
Hudson River off Pier A, average of Jan.	27.5
" " " " Feb.	16.9
" " " " March	17.1
" " " " July	13.0

Generally speaking, the color was shown to increase from the Narrows up-stream, being especially high in the Hudson near Spuyten Duyvil and at the mouth of the Passaic River and of considerable amount near sewer outlets in South Brooklyn and in Coney Island Creek. With some exceptions it decreased with the depth, and at the Narrows it was least during the flood current. The extreme figure found in Newtown Creek was due to trade wastes. The results were in part quite at variance with the bacteria counts as indicative of pollution.

Eight hundred and seventy turbidity tests were made, all from same samples used for color. The results were somewhat conflicting, a value of 2 being found in the Gowanus Canal, Newtown Creek, Wallabout Bay and the Erie Basin, while near Robbins Reef it was 23. The maximum was 2,000 near a chemical works and sewer in Newtown Creek. It was greatest in winter and spring, falling off suddenly about the middle of June. It increased after heavy rains, but the variation due to the season was more marked. High turbidities were noted near sewers and off Ellis Island. The relation to depth was not clear.

6. CHEMICAL ANALYSES OF THE MUD

The only chemical examination of the mud was to determine the loss of ignition.

Five hundred and sixty-six samples of mud from the bottom were tested for loss on ignition and the results noted in parts per million by weight when dried at 105° C. They were collected at various depths below the bottom of the Harlem River and along the Brooklyn shore from Conover street to Clark street. The loss bore no uniform relation to the depth, differing in this respect from the numbers of bacteria, but otherwise the results of the two kinds of analysis ran quite parallel. Near Kingsbridge the numbers were low, but near the East River they were high. In the East River the numbers increased from south to north.

7. FLOAT EXPERIMENTS

Float observations were carried on 27 days in the Hudson and East rivers, Kill von Kull and Upper and Lower bays. The object was to trace the currents with a view of the probable flow or dispersion of sewage from different points—especially from the proposed Passaic Valley sewer outlet near Robbins Reef—under the varying conditions of tide.

The floats consisted of 2 x 2-in. sticks, 8 ft. long, having four sheet iron vanes 24 x 24 in. in size nailed to the bottom and stayed by wire to prevent bending and buoyed by a piece of cork attached to the top. A small flag at the top completed the float.

The position of the float was observed from time to time by a man in a small boat, at first by noting the distance and location of the nearest shore but later by means of a sextant. Although the effect of the wind was slight the floats frequently drifted ashore on the east side of the Hudson and East rivers.

On eight days floats were set adrift near Robbins Reef. In one case it traveled on the flood current to Fifty-fourth street in the Hudson River, a distance of eight miles, in 5¾ hours, and another time it traveled on the ebb current 11½ miles in 6 hours. The least distance traveled on an entire flood tide was over 6 miles.

From the mouth of the Gowanus Canal a float was carried out to Romer Shoal, 12 miles, in 7 hours.

From Sixty-fifth street, Brooklyn, a flood current carried the float but 2 miles along the shore in 5 hours. This, it should be said, was in February, when freshet conditions may have existed in the Hudson, retarding any northerly flow.

No observation covered a complete tide and it was not possible to prove a net outward flow through the Narrows, but it was noted that the maximum distance covered by an ebb current in the harbor exceeded that covered by a flood current.

The longest distance traversed on one tide in the Hudson was 12¾ miles; in the East River, 14½ miles.

The longest time of travel on an ebb current was	7	hours
The shortest time of travel on a complete ebb current was	5	"
The longest time of travel on a flood current was	6¾	"
The shortest time of travel on a complete flood current was	5	"

The paths taken by floats started from the same point were not uniform, but varied, not always with the stage of the tide, but from other causes, not always apparent. That the current is more rapid in midstream than near the shore was shown by two floats set out opposite Yonkers. The one in midstream traveled 12¾ miles in 6½ hours, the other 6¾ miles in 6 hours before the tide turned.

Summaries of the following reports are appended to the Digest:

Investigations made by the Department of Water Supply, Gas and Electricity in 1904 and 1905.

Investigations made by Charles F. Breitzke of the Sanitary Condition of the Gowanus Canal in 1906.

Investigations of the Waters of the Lower Hudson River by the Burr-Hering-Freeman Commission in 1903.

Investigations of the Condition of the Passaic River by Messrs. Hazen and Whipple in 1906.

Taken altogether, the investigations indicated a very general contamination of the waters of New York harbor and their underlying muds, but that localities where such contamination is at present serious are limited to the Passaic Valley and smaller streams and to certain points along the docks and shores, while putrefactive conditions are of exceptional occurrence. The mixing of sea water with fresh water presents very varied states of salinity. Oyster layings below as well as above the Narrows were shown to be subject to gross pollution and the shores to deposits of refuse and garbage. While the float experiments did not afford complete information regarding the discharge of the waters of the bay, they did indicate the distances sewage effluents might be carried under certain conditions of the tide from different points of discharge.

INDIANA GROUND WATER SUPPLIES

In a paper read before the Indiana Water Works Association, Mr. Charles Brossmann recently presented some information concerning the deep well supplies of that State. The southern boundary and about one-half of the western boundary of the State are formed by rivers of fair size, while tributaries to these are distributed with fair uniformity throughout its area. These, however, are almost universally polluted and water from them, as well as that from the lake on the north, requires filtration before use. Springs and flowing wells are to be found in large numbers in the southern and central part of the State and these also are used for public supplies. The greatest percentage of supplies in Indiana, however, is derived from wells.

The well waters of the State are obtained from a glacial drift varying in depth from seven feet to several hundred, from various geological formations beneath the drift, or from the gravels and sands in the alluvial deposits. In raising the water from these wells a number of the cities pump by direct suction, while some use some form of syphon or vacuum pump as an auxiliary in getting the water from the wells to the pump. For deep wells, direct acting pumps, centrifugal pumps and air lifts are used. The direct acting steam heads are generally used where the plant is of moderate capacity. The output is limited by speed and size and may not equal the full capacity of the well. This type also is uneconomical in the case of scattered wells. The deep well centrifugal pump (generally electrically driven), which has been developed in the past few years, permits of greater capacity and is more flexible than the old type, is capable of higher speeds and of pumping larger amounts and, since they use electric power, can be operated economically in scattered units. Of the well-known air lift system there are a number of installations. In spite of recent

improvements, none of the machines at present available give efficiencies comparable to those obtained by direct suction pumps.

A new type of pump is referred to by Mr. Brossmann, known as the direct internal combustion pump. "This type of pump has an exceedingly simple cycle of operation, the principle being that if a column of water be kept in a reciprocating or pendulum-like motion by means of internal explosions, the column in its backward motion compresses the charge for each succeeding explosion, the explosion being worked directly against the water column."

The most important part of this paper was that describing the lowering of the ground water. The idea that this has been caused by cutting down the forests is not credited by the author, since the records show that the rainfall has not decreased during the past 20 years, and in many sections where there is such a lowering there were no forests to remove. That the ground water is actually lowering, and that quite generally, is indicated by the following data, which are but a few of many which could be cited:

Town		Drop		
Kentland	48 ft.	in	5	years.
Elwood	40 "	"	12	"
Greensburg	40 "	"	10	"
Muncie	28 "	"	"	"
Remington	8 "	"	10	"
Marion	6 "	"	20	"
Butler	4 "	"	10	"
Bourbon	3 "	"	8½	"
Linton	30 "	"	6	"
Kokomo	15 "	"	15	"

The drop at Marion is attributed to waste of well water. The fact that a number of cities have recently installed air lifts would signify that the water level in their wells was dropping. A significant fact is that a number of these towns where a considerable drop has been experienced have been increasing very rapidly in population, undoubtedly resulting in greater drain upon the wells and in an increase in the number of wells. It would seem almost inevitable, therefore, that, with the greatly increasing draft upon the supply, the ground water level should be lowered. It is not stated whether it has been found that any of this drop is recovered upon ceasing for a few days to pump a well, and it may be that a portion of the drop is local at the well itself and is caused, not by a general lowering of the ground water, but by the increased suction in the well. Mr. Brossmann suggests another cause of the lowering of the ground water, or rather of a diminution of the supply which results in such lowering. This is the draining of farm lands. He believes that in this way a great deal of water is drained quickly to streams which would otherwise soak into the subsoil and be added to the underground flow.

MOTOR-PROPELLED FIRE APPARATUS

THE rapid development of motor-propelled fire apparatus and its installation in most of the Fire Departments throughout the country indicates that this city is rather behind the times in that regard. That such apparatus is not only efficient, but also more economical than horse-drawn apparatus has been clearly demonstrated by the experience of other departments, and I feel now that the District of Columbia should install at least one such machine in the near future.

These motor-propelled fire apparatus are no longer in the experimental stage, and Washington has an opportunity at this time to profit by the experience of other Fire Departments, the officials of which are practically unanimous in advocating the adoption of such vehicles.

In the estimates of this department for the next fiscal year a provision will be included which, if passed by Congress, will place at the disposal of the Commissioners funds from which such vehicles can be purchased. It is recommended that this provision be approved by the Commissioners and advocated before Congress.—(Report of the Chief Engineer, Fire Department of the District of Columbia, for 1909.)

GAS FROM MUNICIPAL WASTE

Producer Gas from Garbage, Ashes and Rubbish—More than Two Horsepower per Thousand Population—Estimated Cost

By F. C. TRYON

In studying the many wasteful and expensive processes employed by different cities in the disposal of municipal waste, as described in a book written by Wm. F. Morse, Sanitary Engineer (The Collection and Disposal of Municipal Waste), I feel impelled to call the attention of municipal engineers to a process of turning the present wasteful methods to one that will produce a revenue sufficient to pay all the expenses of collection as well as of disposal.

Mr. Morse gives, as an average, the amount of gathered waste as 130 tons for every 100,000 population, and the proportions about as follows:

Ashes—About 90 tons daily.
Garbage—About 20 tons daily.
Rubbish and Refuse—About 20 tons daily.

Of the above amounts as gathered he finds the constituents of the above about as follows:

Ashes—50% fine ash and clinker.
Garbage—70% water.
Rubbish and Refuse—50% articles worth saving.

This leaves for destruction:

Ashes.....50% Coal or.....45 Tons
Garbage.....30% solids or.....6 "
Rubbish and Refuse....50% paper, wood, etc., or....10 "

Total for destruction, daily.....61 Tons

Mr. Morse from various sources finds the calorific value of this destructible material as follows:

Coal sifted from ashes..... 8,000 to 9,000 B.t.u. per pound
Garbage solids 3,000 to 4,000 B.t.u. " "
Refuse and Rubbish..... 6,000 to 7,000 B.t.u. " "

Assuming the low value as given above, we have:

Coal 45 tons 90,000 lbs. 8,000 B.t.u. per lb. 720,000,000 B.t.u.
Garbage . 6 " 12,000 lbs. 3,000 B.t.u. " 36,000,000 B.t.u.
Refuse, etc. 10 " 20,000 lbs. 6,000 B.t.u. " 120,000,000 B.t.u.

Totals.... 61 tons 122,000 lbs. 876,000,000 B.t.u.

for each 24 hours or 36,500,000 B.t.u. per hour.

A properly constructed gas producer, down-draft type, continuous feed with continuous ash removal, will handle this material and probably would give easily 70 per cent efficiency, or 25,550,000 B.t.u. delivered to gas engines in a gas having at least 125 B.t.u. per cu. ft. Good double-acting tandem gas engines will produce a brake horse-power on 10,500 B.t.u.; this will give 2,433 h.p.

If the twenty tons of wet garbage is mixed with the ten tons of dry refuse, after this refuse has been run through a hog and cut up fine, and this thirty tons mixed with the forty-five tons coal screenings, then fed to a producer, the fourteen tons moisture in the wet garbage will not be more than necessary in producers to prevent excessive heats and its consequent clinkers.

If this 2,433 horse-power is utilized to generate electric current, it will produce 1,622 kw. This at 24 hours, 365 days, will equal 14,208,720 kw.-hours.

Many electric light and power companies or street railways would be glad to purchase this electric current at 1½ cts. per kw. hour. This would yield an income to contractor or municipality of \$213,130 per year.

COST OF SUCH A PLANT

Ground, building, machinery and power plant would probably cost about as estimated on the following page.

No account has been taken of the value of material sorted from the refuse. It is well known that it is worth more than the cost of sorting and baling.

The producer plant has been divided into small units so it can be more readily handled and a more uniform fuel bed maintained with less labor. The capacity of the plant in both producers and engines is nearly 50 per cent more than actually required if it were possible to dispose of the electric current for 24 hours of the day. It may be possible to find such conditions, but the probabilities are much greater that the plant

will only operate about 16 to 18 hours daily, in which case the whole supply of 130 tons, which will be delivered at the station within 12 hours each day, must be disposed of within the 24 hours, and the plant should have the capacity of doing so in 16 hours if necessary.

There is no reason why smaller places where the supply of waste amounts to 50 or 60 tons daily should not have the same benefit of utilizing its disposal and at about the same ratio.

There is no possible manner of disposing of refuse and garbage so entirely devoid of unpleasant features to surrounding territory as by the gas producers. There is no smoke, or even a smokestack. There is no noise or smell. The fine ashes sifted from the gathered supply can be sprinkled as screened, preventing all dust, and thus handled and disposed of as readily as moist earth; the clinkers can be sold for road or sidewalk use; the sorting of the refuse handled and baled in the building; metals and solids packed in barrels ready to be shipped away. There can, therefore, be no objections to locating such a plant in a busy section of a city on a railroad, canal or river front where the disposal of the ashes, clinkers, baled rags and paper, barreled bottles, old iron and tin cans pressed into solid packages could be readily handled for shipment where desired.

ESTIMATED COST

Land, 100 x 200 feet.....	\$38,000
Building, 100 x 150 feet.....	50,000
Machinery	24,000
Total	\$112,000

POWER PLANT

10 Gas Producers, 300 h.p. each	\$36,000
3 Gas Engines, 1200 h.p. each.....	120,000
3 Electric Generators, 800 k.v.a. each.....	30,000
3 Exciter Units, 50 k.w. each.....	1,500
10 Gas Exhausters, No. 4.....	2,000
10 Motors to drive Exhausters.....	2,000
1 Switchboard	6,000
Foundation, 10 Producers.....	1,200
" 6 Engines	1,800
Piping	10,000
Erection Labor Producers	1,000
" Gas Engines	2,000
" Generators	600
" Switchboard	300
Wiring Generator to Switchboard.....	4,000
Labor on Wiring	1,000
Freight on Producers	500
" Gas Engines	1,000
" Generators	300
Cartage on Producers... 200 Tons } and placing on	
" Gas Engines 210 " } foundation	4,000
" Generators 30 " }	
" Switchboard, 10 " }	
450 Tons	\$225,200
General Supt. of Erection.....	2,800
Draughting & Engineering.....	5,000
Incidental Expenses	5,000
	\$238,000

Total cost Land, Building, Machinery and Power Plant

\$350,000

OPERATING EXPENSE

Labor Producers—	
5 men to shift, 2 shifts 10 men.....	\$ 950
2 ashmen to shift, 2 shifts 4 men.....	600
Labor Engines—	
2 engineers to shift, 4 men.....	1,500
2 helpers to shift, 4 men.....	700
1 General Superintendent, Day	2,500
1 Asst. Superintendent, Night.....	2,000
Oil and Waste.....	2,500
2 Electricians, 1 day, 1 night, each.....	1,500
	\$30,700

FIXED CHARGES

Interest on mach. of plant, costing \$262,000 5%	\$13,100
Depreciation " " " " 262,000 5%	\$13,100
Repairs " " " " 262,000 3%	7,860
Taxes & Ins. " " " " 262,000 2%	5,240
	\$39,300
Interest and Depreciation on Building.. \$90,000	6,200
	\$45,500

Total Operating Expense and Fixed Chgs. Sinking fund, 5% cost of plant.....

\$ 76,200

17,500

\$ 93,700

INCOME FROM SALE OF CURRENT

1622 kw. 24 hours=38,928 kw. daily.....	
365 days per year=14,208,720 kw. sold for 1½c. per kw. hour.....	\$213,130
Less operating expense.....	76,200
Yearly Net Profit.....	\$136,930
Less Sinking Fund.....	17,500
Net Profit	\$119,430

The accompanying estimate sheets show the cost of the power plant and the cost of operation. There is no question in the mind of any engineer that electric generators will operate successfully with double-acting twin tandem gas engine. Neither is there any doubt that these gas engines will develop their full rated horse-power on 10,500 B.t.u. per horse-power hour when delivered in a clean gas of 125 B.t.u. per cubic foot. The whole matter then sifts down to this question: Will gas producers handle in the proportions as above outlined this class of combustible matter whose average calorific value is 7,180 B.t.u. per pound? It is well known that there are many successfully operated producer gas engine plants daily in operation where the fuel used contains less than 6,000 B.t.u. per pound and has a moisture of over 30 per cent, while the mixture of this garbage and refuse contains only 18.66 per cent.

It would be a good investment for any city that contemplates the establishment of a garbage and refuse destruction plant to spend a few thousand dollars to determine the feasibility of using this manner of turning a necessary unpleasant waste into the light and power of pleasure and progress.

REFUSE COLLECTION SPECIFICATIONS

THE District of Columbia has adopted unusually complete specifications controlling the collection and disposal of ashes, garbage, dead animals and night soil, all of this work being done by contract. Effort has apparently been made to be as specific as possible. For instance, oysters and clam shells from business places are named as not included under the head of garbage. Miscellaneous refuse, in addition to ordinary household rubbish, includes discarded Christmas trees, prunings from vines, but does not include wall paper, or substances which may accumulate as the result of building operations or repairs. Such accumulations, as well as manure and certain other substances, must be removed and disposed of privately.

Garbage, night soil, miscellaneous refuse and ashes must be collected between 7 a. m. and 6 p. m.; dead animals between 6 a. m. and 9 p. m. Receptacles for garbage and ashes from residences must be such as can be handled by one man. No receptacles will be allowed on a sidewalk, street or public alley, but must be placed inside of or near the side or rear entrance to the premises, or in the areaway or other convenient place in front of said premises; or if there be no such space, inside of the building itself. To enable the householder to unlock the gate or door necessary to give access to the receptacle, the collector is to make free use of a horn, gong or other signal. Household must separate the refuse into the classes named above, so far as practicable. The ash receptacle must have a capacity between 5 and 24 gallons. Garbage is to be kept as free as possible from dishwater and protected from freezing, and both ash and garbage receptacles must be kept covered to keep out rain and animals.

The collector is required to carry a water-tight bucket and empty garbage into this rather than directly into the cart, thus lessening the amount of passing to and fro which is required. The contractor is required to issue at his own expense cards stating the days for collecting each class of material in particular streets and districts, and designating, as nearly as may be, between what hours the collector will call in each locality; the cards containing also quotations from police regulations concerning the size and nature of receptacles, separation of materials, etc. The contractor is required to provide vehicles for collecting each of these classes of material, other than dead animals, which have capacities in exact multiples of one yard, and these "Must be so constructed as to be loaded and unloaded and to carry their contents without offense to the public." (If this clause of the specifications is lived up to, Washington will be the only city of the country where it is.) All receptacles for collection of garbage, whether barrel or wagon body, must be of metal, water-tight and provided with a cover. If the cover be of metal it must be provided with rubber or other pads to prevent rattling. The entire receptacle and cover must be thoroughly washed inside and out once every 24 hours.

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CHANGE OF ADDRESS

Subscribers are requested to notify us of changes of address,
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Contributions suitable for this paper, either in the form of
special articles or of letters discussing municipal matters, are
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Subscribers desiring information concerning municipal matters
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MARCH 30, 1910.

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Utilization of Refuse

IN this number will be found a description of two methods
of utilizing garbage, ashes and rubbish of cities; one in actual
use for a number of years in France, the other proposed by an
engineer of New York City. It is possible that the composting
of compressed garbage would not be adopted readily by farmers
in this country; but it seems probable that it might appeal to
the market gardeners in the vicinity of our largest cities. Such
gardeners make a practice of stacking manure in the fall and
allowing it to work into proper condition for the spring plant-
ing. It is possible that they could be easily persuaded to try
the use of compressed garbage, possibly mixed with a greater
or less percentage of manure, in the same way. This seems well
worth investigation, since the French farmers find this ma-
terial especially desirable for vegetable gardening.

The other method also seems at least to deserve consideration.
The fuel value of city refuse has been demonstrated, but one
of the chief drawbacks to its use in any plant from which a
financial return could be secured lies in the variableness of its
nature, the intermittency of its collection, and other minor
conditions which make it impracticable to secure a continuous
uniform rate of steaming, or securing maximum steam power
at the hours when it is needed. In utilization by gasification,
the gas could be stored and used as required. This would
permit the refuse to be consumed as it arrived at the plant,

or at least at a uniform rate. According to the estimate given
by Mr. Tryon, there would be a net profit of between \$2 and \$3
in this method of utilization, which should be ample to cover
the cost of collection.

In connection with the later method, we call attention to the
article in the March 16th issue describing the results of in-
vestigations by the U. S. Geological Survey of producer gas
plants, affirming "the possibility of use in such plants of practi-
cally all grades of fuel of any commercial value." Altogether,
this suggestion seems to us to hold out considerable promise.

City Planning Conference

WE desire to call the special attention of City Engineers, as
well as of other officials, to a conference to be held in Rochester,
N. Y., May 2, 3 and 4, to discuss various questions relative to
city planning. Such a meeting was decided upon a year ago at
the first conference held in Washington, but it is hoped to
make this conference more practical in its nature than was
that one, not merely a part of a campaign of education, but
rather a conference of experts whose intimate knowledge of
specific branches of the subject enables them to make concrete
contributions to the science of city planning. Heretofore these
conferences have been too much in the nature of general dis-
cussions on how desirable a thing a city plan is, reference
being had especially to some striking feature, such as a civic
center, a system of parkways, or a grand boulevard. Much
excellent work has been done along this line, and is still being
done; but many of our cities have already mapped out work
which it will require a decade or more for them to carry into
effect; and a great many are not in a position to undertake
any work of this character at all. We believe, however, that
there is hardly a city in the country which would not find it
to its advantage to adopt a general city plan for the correcting
of past mistakes and the preventing of future ones in the
general layout of the city. It is hoped that this feature will
receive most serious consideration at this conference, as it is
this which will be of the greatest value to city engineers. To
receive this consideration, however, the engineers must them-
selves show their interest in it by attending the conference and
contributing to the discussion.

There will be three general topics for discussion at this
conference, one of these being Congestion of Population; the
second, the Circulation of Passengers and Freight (by means
of highways and city transit lines); and the third, Problems
of Legal and Administrative Procedure affecting the city plan.
Among the speakers on the second topic will be Nelson P.
Lewis, Chief Engineer of the Board of Estimate and Appor-
tionment of New York City; Geo. R. Stearns, Director of
Public Service of Philadelphia, Pa.; Calvin Tomkins, Dock
Commissioner of New York City; Geo. R. Wadsworth, Civil
Engineer, of Boston; John Nolen, landscape architect, of Cam-
bridge, Mass.; Geo. E. Kessler, landscape architect, of Kansas
City, Mo.; Sylvester Baxter, of the Metropolitan Improvement
League of Boston, and Prof. James S. Pray and Henry V. Hub-
bard, of Harvard University. On the subject of Legal and
Administrative Procedure, which will include the rights and
practices of cities in opening up streets, in condemnation and
purchase of land for public improvements, etc., the speakers
will include Andrew Wright Crawford, Assistant City Solicitor
of Philadelphia, Pa.; Bolton Hall, attorney-at-law, of New
York City; Frederick L. Ford, City Engineer, of Hartford,
Conn., and Jos. W. Shirley, Chief Engineer of the Baltimore,
Md., Topographical Survey.

In these discussions generalities will be most carefully
avoided, and the aim will be to discuss certain phases of
each subject thoroughly rather than wander over the whole
field. One of the features of the conference will be a round
table discussion, after each session, of the ideas presented in
that session, this being a more or less informal discussion in
which all may compare notes.

The conference meets in Rochester at the invitation of the
Rochester Chamber of Commerce and Civic Improvement Com-

mittee. At the opening of the conference those attending will be taken for an inspection tour of Rochester and a luncheon will be given to the visiting members at the Genesee Valley Club. The first regular session of the conference will be at 8 P. M. on May 2, at the rooms of the Chamber of Commerce. Mr. Geo. Dietrich, President of the Chamber, will preside; Mayor Edgerton will welcome the members, and Mr. Clinton Rogers Woodruff, Secretary of the National Municipal League, will respond. Mr. Frederick Law Olmsted will introduce the conference by a paper showing the relation to each other and to the general subject of the special topics to be discussed. This will be the only general paper read at the conference.

A morning and afternoon session on May 3 will be devoted to the subject of congestion of population, the morning being devoted to the causes and the afternoon to the prevention. That evening a banquet will be served at the Hotel Seneca. The Circulation of Passengers and Freight will be discussed on Wednesday morning, and the Problems of Legal and Administrative Procedure on Wednesday afternoon, which will be the final session of the conference.

The entire project is in charge of an organization styled the National Conference on City Planning. Mr. Frederick L. Ford, City Engineer of Hartford, Conn., is the chairman of the Executive Committee of the General Committee; and the secretary is Mr. Flavel Shurtleff, 19 Congress street, Boston, who will be glad to give any additional information concerning the conference.

GARBAGE DISPOSAL IN MARSEILLES

Used by Private Company to Fertilize Gravelly Plain Forty-Three Miles Away—Compressed and Sold for Gardens and Vineyards

In a recent report Consul-General A. Gaulin describes the experiments that have been carried on in the French city of Marseilles in the disposition of garbage, and the system that has been worked out. His description is as follows:

For a great number of years the street sweepings and general refuse of the city of Marseilles were dumped at certain points in the suburban districts, and placed at the disposal of farmers in the neighborhood. During 1885, after two consecutive epidemics of cholera, a special service for discharging the city's garbage into the sea was organized. But this system was found too costly and unsatisfactory from a hygienic standpoint, as in stormy weather the sea frequently brought back considerable quantities of detritus which had been left too near the shore.

Another solution of the problem was therefore adopted in 1887, when the municipality decided to accept the offers of a private company, which had undertaken to fertilize a vast territory known as the Plaine de Crau, about 70 kilometers (43.49 miles) from Marseilles, and proposed to use the city's garbage for this purpose. The pebbly plains of the Crau cover an area almost equal to 45,000 hectares (111,196 acres), the greater part of which was at the time absolutely barren, although its reclamation had long been advocated by economists, and also by the agricultural interests of the district. When the above-mentioned company applied for the exclusive right to remove the city's refuse, upon payment by the municipality of the sum of 54,000 francs (\$10,422) annually, it was deemed an advantageous proposition, both from a sanitary and a financial standpoint, as the city's expenditure on this score amounted every year to at least 78,000 francs (\$15,054). The probable increase in the agricultural wealth of the Marseilles region which might result from the execution of the proposed contract was also taken into account, and a franchise was accordingly granted upon the terms already stated.

It was agreed that the Street Cleaning Department would deliver every day of the year at the dispatch stations of the company all the sweepings, detritus and refuse collected in the

city and its suburbs, and that the company would remove these materials by rail within the next twelve hours to the Crau plains, excepting, however, such quantities as might be required by the suburban farming communities. Two dispatch stations were established, both being located at convenient points in the city limits, and connected with the railway. Special platforms have also been erected, from which the Street Cleaning Department's tip carts may easily unload their contents into the cars below. Fifteen cars may be loaded at the same time. The type of car provided for this purpose is that commonly used for carrying coal. There are two deliveries per day, and the total daily load averages 276 metric tons.

The cars usually leave the dispatch stations at sundown each day and arrive at their destination (Bausseuc in the Crau) at sunrise the following day. As it takes 24 hours before a mass of garbage will begin to ferment, its transportation in open cars within a few hours after it has been collected has been found to offer no inconvenience from a sanitary point of view. The contents of the cars are dumped along a special track connecting the company's plant (which is several miles distant from any habitation) with the principal railway line. Movable tracks are used for the transportation of manure wherever needed on the plains, this operation being facilitated by the fact that the land is perfectly level and without growth of any kind. Immediately after unloading the raw materials are raked, and such articles as bottles, paper, scrap iron and the like sorted out by hand and utilized in various ways. The stones serve chiefly as ballast for the railway tracks and for the macadamizing of roads.

The residue is shoveled into the hopper of a crushing machine, where it is compressed. It may then be sold as green garbage, "gadoues vertes," or allowed to ferment for several months, when it presents the appearance of a black earthy mass designated as "gadoues noires." The purchasers of "gadoues vertes" never use them in their raw state, but only after fermentation.

This fertilizer has been found most efficacious for vegetable gardening and vineyard culture. It is preferred for these purposes to farm and stable manure and to chemical products. Large quantities are shipped from the Bausseuc plant to the truck farmers and wine growers in this district. Until now, however, the greater portion has been consumed on the Crau plains. Over 5,000 hectares (12,355 acres) has thus been won over to profitable culture, and 12,000 hectares (29,652 acres) in that vicinity supplied with fertilizing elements.

Analyses of the product in question have shown as a rule the following compensation: Azote (nitrogen) 0.68 per cent; phosphoric acid, 0.94 per cent; potassium, 0.58 per cent; calcium, 1.32 per cent. As the soil of the Crau is especially lacking in azote and phosphoric acid, this fertilizer has proved extremely well adapted to its needs. From 20 to 25 tons are required per hectare (2.47 acres), and leading authorities state that it should alternate at least every three years with other organic and mineral fertilizers.

It is sold in carload lots and shipped either in bulk or in bags, at prices varying from 0.5 franc (9.65 cents) to 3 francs (57.9 cents) per ton, according to the seasons and to the agricultural situation. The truck farmers in the immediate vicinity of Marseilles have the right to buy "gadoues vertes" at the dispatch stations in Marseilles, but in most cases deliveries are made to them in the company's carts. They take only a very small share of the total production.

The company mentioned recently transferred its interests to a new concern, to which the city granted a franchise expiring in 1934, with the right to erect within the city limits two plants, where all the detritus collected in Marseilles may be mechanically treated, and all unmarketable articles found therein shall be incinerated. This system is not yet in operation, and there is no definite information available on the subject. Under the present arrangements the city pays an annual indemnity of 44,000 francs (\$8,492) instead of 54,000 francs (\$10,422) as heretofore.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance

ROADS AND PAVEMENTS

Manufacturing Paving Brick in Baltimore

Baltimore, Md.—That a vitrified brick plant may be driven from the city if the proposed legislative amendments requiring the lowest bid for any kind of material to be accepted are adopted, is said to be a certainty. Largely, it is said, as a result of the adoption of the alternative system of bidding, the Westport Paving Brick Company has recently begun the manufacture of vitrified bricks, and while their article is yet new on the market, it is held by experts to be an excellent product. This company could not sell a brick in Baltimore if the Padgett amendment should pass, as it would effectually prevent this material from being used, although in some cases it is admitted that it is preferable to any other material. President Smith, speaking of the Westport product, said:

It is a new product of the company, but I have had it examined and it has come up well in the tests. Chemical tests and tests for abrasions have been applied, and the brick, which is a home product, has come up to them fully. If the Annex loan amendment was passed, it could have no hope of being accepted, as the alternative system of bidding is the only one by which we can select the materials we want and get competition on all of them.

Expensive Item in Road Maintenance

Decatur, Ill.—The following statement of the cost of putting a new plank in a bridge floor was related at the recent good roads meeting at Forsyth, as evidence of the need of improving the present system of road maintenance: A certain bridge in the township had a broken plank. This fact was reported to one of the supervisors, who in turn called the Board to meet in special session to determine what should be done. The Board met and decided to put in a new plank. A farmer accordingly was hired to go to town and bring out the plank and put it in. The Board then held another meeting to see that the work had been properly done, and to allow the bill. Each member of the Board drew pay for each meeting, and the farmer was paid for his trip to town, and when the matter was all summed up that plank cost the township just \$12.

Tossed Coin for \$25,000 Contracts

Jersey City, N. J.—Van Keuren & Sons and E. M. Mullin & Co. were the low bidders, and tied, on two street improvement contracts. Mullin and Van Keuren decided to toss a coin for each contract, worth \$25,000, and each won a contract.

Bureau of Information on Cost of Street Paving

Louisville, Ky.—At the meeting here of the executive committee of the Kentucky Municipal League it was advocated that a central bureau of information be maintained by the league, this bureau to provide for all cities of the State data upon the cost of paving, the durability of various materials, and with regard to other municipal improvements. As the information would be based upon experiments in cities throughout the country, the expense to individual cities of sending committees and delegates on expensive trips to obtain such knowledge to be eliminated. The plan will be submitted at the annual meeting later in the year.

Contractors to Pay Penalty for Delay

Pasadena, Cal.—Tired of the dilatory tactics of contractors on street work, the Council has ordered the City Attorney to prepare an ordinance providing a penalty for every day after expiration of contract on which street work is not completed. At present contractors take jobs, put up bonds to complete them on a certain day, and then fail to do so. They then come to the Council and get an extension of time of from 10 to 60 days. In the future it plans to give no extensions except for urgent cause, and to make the contractor pay a fine every day he is late.

Device for Stopping Runaways on Steep Grades

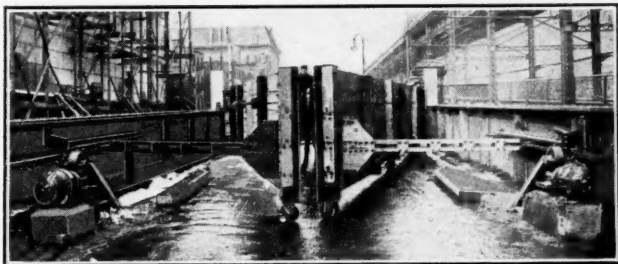
New York, N. Y.—The new device for the purpose of trying to prevent runaway horses and teams from dashing themselves to death on the Williamsburg Bridge has been installed and is ready for action. The new gate has been completed and was given a tryout under the direction of O. M. Kelly, the engineer in charge of the Williamsburg



Courtesy Brooklyn Eagle

RUNAWAY CATCHER—UPPER SIDE

Bridge, and worked smoothly and satisfactorily. The new gate is located at the Brooklyn end of the bridge, where the decline opening out on the plaza is steep, and this point is where most of the runaway horses have been killed since the bridge opened. The idea of the gate was suggested by James Connors, a laborer attached to the Department of Bridges, who had been an eye witness to several runaways. With the permission of the present Bridge Commissioner



Courtesy Brooklyn Eagle

RUNAWAY CATCHER—LOWER SIDE

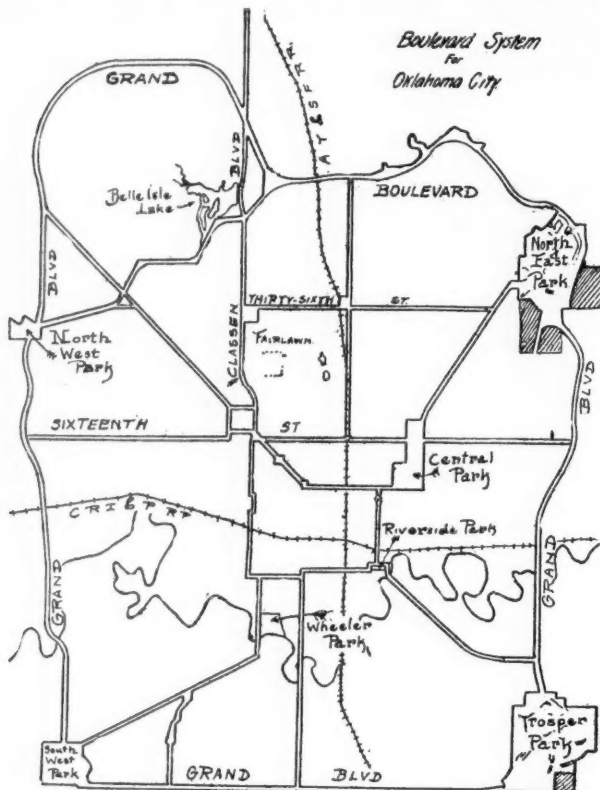
and former Chief Engineer Kingsley L. Martin, the design was worked out in the office of the division engineer under the direction of Engineer O. M. Kelly. The gates, or leaves, as the engineer terms them, are 40 feet in length, and are made of Oregon pine timbers 4 inches by 12 inches and heavily reinforced and bound with iron and bolted. The gates are operated simultaneously, and when in position to stop a runaway form a V, with the large opening facing traffic. As it is practically impossible for the runaway to strike the gates at right angles, the damage must necessarily be reduced.

Question in Brick Paving Raised

St. Petersburg, Fla.—The old Council let a contract for paving Central avenue and some other streets with paving brick, the brick to be laid on the flat side. Some property owners, thinking that the life of the bricks will be less if laid in that way, and the difference in cost is not very great, are bringing arguments to have the new Council order the bricks laid in the more ordinary method. It is said that towns larger than St. Petersburg have caused their streets to be paved with side-laid brick, and that the pavement has been a success. The questions involved are the relative hardness of the bricks on the different sides, the degree of accuracy with which they can be laid, and the durability due to the greater or less frequency of joints.

Oklahoma Plans Boulevard System

Oklahoma, Okla.—In the report for an outer parkway and a plan for an interior system made recently to the Park Board of this city by W. H. Dunn, of Kansas City, Mo., who has been retained as landscape architect on the work, a feasible plan for a system of inside boulevards and parks has been presented for the approval of the Board and Council. In his report Mr. Dunn makes the statement that the general topography is of such a character that easy grades



may be obtained in all directions. The attention of the Park Board is called to the selection of these streets to be used as boulevards so they will not conflict with other streets that may be required for traffic ways on account of their easy grades. The entire park and boulevard systems as planned will give the city 70 miles of boulevard and 1,874 acres of land devoted to parks. Of this 40 miles of boulevard and 10 acres of park grounds are planned for the inner system. It is estimated that in addition to the regular parks there will be in the neighborhood of 665 acres of land devoted to parkways in the boulevards.

Test on Pavement Rebate

Green Bay, Wis.—A case to test the new paving law on the point of whether or not the property owners on Adams, Crooks, Dousman and West Walnut streets, which are to be repaved, shall receive a rebate on the price of the old cedar block pavement, will be brought by the city against a property owner to secure a ruling by the Supreme Court on that particular section of the law. The cost of the old cedar block pavement was about \$1.10 per square yard, and if the law is construed in one way the property owners may pay only the difference between \$2 and \$1.10, or 90 cents. If the court decides the question of law in another way, the owners may pay the full \$2. The question is to be put to the court, and the property owners will then know.

Paving Scandal Is Revealed in Paterson

Paterson, N. J.—During the hearing of testimony in the suit for mutual accounting of the partnership of John R. Lee, William H. Ring and George MacDonald, contractors, before Special Master in Chancery Hopper, surprising testimony as to contracting work done in this city was given. It developed that 53 yards of pavement on Main street, between Market and Smith streets, was supposed to be re-blocked with new wooden blocks, but instead the old blocks simply were turned upside down and the contractors were paid for new blocks.

SEWERAGE AND SANITATION

River Bank Subway May Interfere with Sewers

Boston, Mass.—C. Barton Pratt and Edgar S. Dorr, sewer authorities for the city, are very much opposed to the present plan of the Riverbank Subway, as it will mean that the sewage of that part of the Back Bay must be siphoned under the subway, not only at considerable initial construction expense, but the cost of keeping the siphons in proper condition will be a fixed maintenance charge against the city. It is the experience of every large city, they say, that siphons of this character need the constant attention of an expert engineer, and even then, in the time of storm, the pipes might become clogged and not only the basements of houses along Beacon street flooded, but houses even as far over as Huntington avenue, and possibly beyond that distance, might be affected. Mr. Dorr said recently that even if the expense of relocating the subway is \$500,000 more if placed in another course, he thought it would be economy for the city to do it. Mr. Dorr says that all sewer complications can be avoided if the subway course is laid somewhat nearer the water and between a trunk line sewer now existing there and the water. No intricate siphons would then be necessary. The subway in that event, he says, would need to be deeper laid, and would on that account cost more. It is possible, too, that there would be an added construction cost, due to the necessity of making a cofferdam all along the water side of the route.

Pumping Out Sewer for Investigation

Chicago, Ill.—The pumping out of the water in section N of the Lawrence avenue sewer intake, to determine if the construction materials were skimmed in its building, has been started. Improper construction is alleged in the Grand Jury indictments returned six weeks ago against Contractor M. H. McGovern, Paul Redieske, former assistant commissioner of public works, and others. Ever since State's Attorney Wayman demanded that the sewer be pumped out, to determine the conditions, there has been much silent opposition to the program. A number of night prowlers have been seen in the vicinity of the sewer gates, and the fear has been expressed that the intake might be blown up with dynamite. Mr. Wayman has had detectives stationed there night and day ever since the work of closing the sewer gates was begun.

Franklin a Clean City, Says Mayor

Franklin, Pa.—A challenge has been issued by Mayor John P. Emery in response to a letter written by Commissioner of Health S. G. Dixon, who takes Franklin to task for not having a Board of Health. Mayor Emery has advised Commissioner Dixon that Franklin's health officials are rather inactive, but could be called together on two hours' notice. The city's sanitation is supervised by a committee of Council and a Health Officer. The Mayor calls attention to the fact that in this city of 9,000 persons there were only 129 cases of communicable diseases in 1909, and this included most of the ills of children. There were only 9 deaths from infectious and contagious diseases, 7 of which were from tuberculosis. There were 25 cases of typhoid fever, not one of which resulted fatally. There is now only one case of typhoid fever. "If you can point out to me a city with a better health record in proportion to its size," writes the Mayor, "I will send you a box of good cigars."

City Sues Sewer Contractor

Tacoma, Wash.—The city has instituted suit against Contractor Nicola Maruca in the Superior Court for \$1,000 alleged to be due under the terms of a conditional sewer contract completed last October. The complaint recites that Maruca was awarded a contract for constructing a sewer in Local Improvement District No. 174 on March 11, 1908, at a contract price of \$20,458.08. The work was completed and accepted last October, and since that time Maruca is said to have received cash and warrants for the full amount of the contract. The city now avers that Maruca promised to pay \$1,200 for the cost of engineering, inspecting, advertising and the cost of bonds. He has paid \$200 of the \$1,200 and the suit is for the final \$1,000.

Oyster Industry Doomed by New York Sewage

New York, N. Y.—As a result of the final report of the Metropolitan Sewerage Commission to Mayor Gaynor, dealt with at length in these columns last week, it is likely that the Department of Health will place a ban on all oysters taken from the waters of New York harbor. The reason for this proposed action is that the immense amount of sewage now being poured into the waters of this harbor pollutes it to such an extent as to infect the oysters grown therein. If the Health Department should take this action it would mean the destruction of a historic industry along the shores of Staten Island and Jamaica Bay. In Canarsie alone millions of dollars are invested in oyster growing, and if the extensive oyster fisheries in all parts of Jamaica Bay had to be abandoned a huge quantity of labor and capital would have to seek employment elsewhere.

Digging Machine Rushes Sewer Work

Haddonfield, N. J.—Bell Brothers, who were awarded the contracts for installing the new sewers and manholes in Haddonfield are progressing rapidly on the operations, the sewer lines on Mount Vernon and Haddon avenues being nearly completed. That the work is being done very rapidly is due to the fact that Bell Brothers have a digging machine which does excavating in about one-third the time that a force of men could do it.

Philadelphia Buys Land for Disposal Plant

Philadelphia, Pa.—The city has taken title to a tract of 170 acres of land in the Fortieth Ward fronting on the Schuylkill River and Mingo Creek. From the location of the land and the large amount purchased it is supposed that it will be used for a disposal plant, work on which, under a recent act of the Legislature, must be begun by 1912.

WATER SUPPLY

Wooden Water Pipes Preserved for 175 Years

Burlington, N. J.—Under ground for 175 years and in service for more than a century, the old wooden pipes that constituted the first main of the Burlington water works were found in a fair state of preservation by workmen who last week took up several rods of the wooden main and the iron pipes installed at a later date in South Burlington. The pipes were used when the old Burlington Aqueduct Company supplied city homes with water from the springs on Crow Hill, the water being first collected in a basin and piped into the houses with only such pressure as it gained from gravity.

Boroughs in Joint Protest Against Water Rates

Collingdale, Pa.—The citizens of Collingdale and the Borough Council have held several meetings to formulate plans for protesting against the rate recently established by the Springfield Consolidated Water Company. The citizens' committee has joined with Clifton Heights, which is leading the fight against this corporation, and will employ special counsel to represent them.

Municipal Water Plant Profitable

Denison, Tex.—The profits from the municipal water plant for the fiscal year ending March 1, according to a report just filed with the City Commission, were \$19,252.57. A total of \$13,467.14 was spent for improvements and extensions.

Denver Water Franchise

Denver, Col.—Petitions circulated by the Denver Union Water Company requesting that the question of granting a new franchise to the company be voted upon by the citizens of Denver, have been filed in the office of the city clerk. The signatures numbered 41,088. At a meeting of the Board of Aldermen a bill was introduced requiring that the question of granting a new franchise be voted on at the regular election to be held on May 17. The bill requires that separate ballots shall be prepared for the franchise question and that these ballots shall be deposited in separate ballot boxes, but that the regular election judges shall count the votes.

Measure Air for the Water Wells

Galveston, Tex.—The city is installing an air meter at the pumping station and wells at Alta Loma with a view of measuring the amount of air used in each of the 30 wells to raise the water used in Galveston. The plan is first to ascertain the amount of air used by each well from the air compressor at the pumping station and then regulate the distribution of air among the 30 wells. The air compressor plant installed about a year ago has a capacity of 1,200 cubic feet of air per minute. This compressed air is distributed by the engine to the 30 wells extending over a territory three miles long. But it is not known what each well is getting. Commissioner Lange of the Water Works and Sewer Department, City Engineer Dickey and Superintendent Drewry are working together on the plans and installation. With the installation of the air lifting plant the capacity of the 30 wells has been greatly increased, and in fact, more than doubled. It is now possible to pump and supply Galveston with 7,000,000 gallons of water a day. Formerly and before putting in the air plant the pumping station pulled on an average of between 2,500,000 to 3,000,000 gallons a day out of the wells. The daily consumption now, however, is only a little over 3,000,000 gallons, but the plant at Alta Loma is prepared to deliver 7,000,000 gallons if necessary.

Orphanage Installs Plant; City Operates It

Duluth, Minn.—The new Catholic Orphanage water system has been placed in operation and the Water and Light Department is now pumping water to the 20,000-gallon tank on the Orphanage grounds. The new pump installed at Minneapolis avenue, just east of Anoka street, has a capacity of 300 gallons a minute, but pumped on its test 310 gallons. It is a gas pump of modern make and is capable of supplying sufficient water to the district for some time to come. The Orphanage system for the present is a sort of private system operated by the Water and Light Department, as the Orphanage advanced the cost of the system, it being installed principally for the use of the Orphanage. There is a large district to be ultimately supplied, however, and when the entire patronage becomes sufficient to support the system, the advance will be repaid to the Orphanage, the system will be taken over by the Water and Light Department and a new tank will be installed away from the Orphanage grounds.

Reduced Rates After Year of City Ownership

Eau Claire, Wis.—Council, by the adoption of a resolution, decided to reduce the water rates to the patrons of the municipal water works plant 30 per cent. It is anticipated that within a few months another reduction in rates will be declared. The city has owned the water works plant just one year, and in that time has spent \$20,000 in improvements and extensions.

Meters in Lowell

Lowell, Mass.—Analysis of the receipts for water during the past year shows that 87 per cent was derived from metered water, while only 75 per cent of the supplies are metered. This goes to prove that many of the services still on fixture rates are not paying for the water used by them. The number of metered accounts is 9,466; accounts based on fixture rates, 2,125. Of the total number of meters in use at the beginning of the year, 703, or 7 per cent, were taken out for repairs, and 26 of those taken out were condemned as unfit for further use. Superintendent Robert J. Thomas says he believes that all meters in use for ten years consecutively should be taken out and overhauled, as many of them are probably falling far short of registering the amount of water passing through them. The increase of income derived from the meters thus overhauled and readjusted would pay for the expense incurred.

State Board Rejects Mechanical Filtration

Lynn, Mass.—Chemical mechanical filtration of the Lynn water supply has been unconditionally rejected by the State Board of Health. At a conference at the State House Mayor James E. Rich and the members of the Lynn Water Board and the Council's committee on water supply were informed that nothing would be satisfactory to the State Board of Health but slow sand filtration.

Bottled Water Not as Pure as City's

Milwaukee, Wis.—That water furnished by the city from Lake Michigan is purer than mineral water sold in bottles in large quantities in Milwaukee is the information made public by Dr. G. A. Bading, Commissioner of Health, after a thorough analysis of spring waters by Dr. George C. Ruhland, City Bacteriologist. As a result of the investigation some firms handling mineral waters were notified of the dangerous condition of their water and warned to remedy conditions to prevent the health department from taking steps to prohibit the sale in Milwaukee. After carefully analyzing samples of mineral water taken from distributing wagons of two leading firms, the health department says it found that "the water is positively dangerous to the public health," and that it "is more liable to lead to contagion" than water taken from Lake Michigan by the city for drinking purposes. "We have never claimed that the water furnished by the city was absolutely pure, but I am sure people will run less chance by drinking from faucets than by taking small quantities furnished by mineral water concerns," said Dr. Bading. "I am surprised at the findings of the bacteriology department and certainly will take steps to have the sale prohibited unless more sanitary methods are used in bottling the water." Dr. Bading said contamination found in samples probably was due to unsanitary methods of bottling, rather than to the condition of the liquid when taken from the springs. Dr. Ruhland's investigation showed that one of the bottles was not clean, and that the cork contained two human hairs. One jug had a filthy stopper with many crevices and pores, while the contents had a musty odor.

City Supplies Water Where Company Was Restrained

Montgomery, Ala.—The Louisville & Nashville Railroad is now being supplied with water by the city, a temporary pump having been put in place at the old pumping station on the river bank. On March 3 it was brought to the attention of Mayor Gaston Gunter that the Citizens' Light & Power Company had laid a main across one of the city's streets, without a permit, to furnish water to the railroad, and he ordered it removed and announced that he would protect the city's right to sell water at all costs. As the railroad needed water without delay, the Mayor then ordered a carload of machinery, had city prisoners lay the pipe and placed the pump in operation in quick order. There will thus be no drain on the city supply and there will be an ample supply for all railroads and other industries for their boilers. A finely equipped plant is to be put in by the city in time.

Two Kansas Cities; One Water Plant

Kansas City, Kan.—Last Sunday morning the entire water service for Kansas City, Kan., was supplied by the pumps of the municipal water works system of Kansas City, Mo. Such an arrangement was made by the Water Commissioners of the Kansas side and the Fire and Water Board of the Missouri side. But the one-city water system lasted only a few hours. In the last seven months large improvements have been made at the Kansas City, Kan., pumping station, and as a part of these improvements are now finished it was necessary to shut down the pumping stations to install valves and make connections to permit their use.

Lambertville Has No Water Right

Lambertville, N. J.—At the present time the city of Lambertville has no contract for a water supply. In 1908 a ten-year contract ran out, and since that time the plan has been to renew the contract each year. Last year the city improved North Union street because of the business and residential boom in that section, and asked the Lambertville Water Company to extend its mains. The company ran a pipe about one-third of the distance, but decided that the city must bear the expense if the remainder of the street were piped. Council gave no instructions on the matter and did not authorize a renewal of the contract at \$214 per annum. On January 1 the contract expired. Much of the city's fire protection is from the plugs from this supply. However, the water has been available all the time and the regular quarterly payment will be made to the company as before.

Topeka Again Reduces Water Rates

Topeka, Kan.—Another proof of the many statements that the municipal water works is a paying proposition—the Water Works Commissioners are planning to make a 10 per cent reduction on all water rates with meters, this having been recommended by Superintendent Jesse Shaw. The reduction will be the second one to be made in Topeka by the Board during the last six months. Not long ago a reduction of 4 cents a thousand gallons was made to users who come in the "fourth 5,000" class; 6 cents per thousand gallons from those in the "fifth 5,000" class, and 1 cent a thousand gallons in those in the "5,000 and up" class. This was for the benefit of the large consumers in the city. In the proposed reduction the small consumers will be benefited. In the first place, the minimum has been changed from 850 gallons to 1,000 gallons. At the present rates a consumer must pay 40 cents a month, regardless of the amount of water he uses. For 40 cents a person can get 850 gallons of water. The new rates make the first 1,000 gallons of water for 40 cents and the minimum is judged in this manner. The rates in effect at this time charge 45 cents for the first 1,000 gallons of water. The proposed change is to 40 cents per thousand gallons. All of the other rates will go down proportionally. The following list of rates are in effect at this time and under the proposed change are subject to a 10 per cent reduction:

For first	1,000 feet	45c	per 1,000 galls.
For second	1,000 feet	40c	per 1,000 galls.
For third	1,000 feet	32c	per 1,000 galls.
For fourth	1,000 feet	26c	per 1,000 galls.
For fifth	1,000 feet	24c	per 1,000 galls.
For second	5,000 feet	22c	per 1,000 galls.
For third	5,000 feet	21c	per 1,000 galls.
For fourth	5,000 feet	16c	per 1,000 galls.
For fifth	5,000 feet	12c	per 1,000 galls.
For next	5,000 & up	9c	per 1,000 galls.

Seven and one-half gallons to 1 cubic foot.

Right to Extend Mains Beyond Corporation

Newport, O.—The House has passed the bill granting to cities of the second class the right to extend their water mains beyond the corporation line. The bill was introduced by Representative Newell for the benefit of Newport.

Advocates Complete Meter System

Perth Amboy, N. J.—Following an inspection of the water system Commissioner Thomas Grieve has recommended to the Water Board in a written report that water meters be placed in all the schools, fire houses and public buildings, and a system of metering be established which would eventually include every dwelling house and public building in the city. His recommendation is the result of a discovery that hundreds of thousands of gallons of water which are pumped from Runyon daily are unaccounted for. Commissioner Grieve says that at the present rate, 108 gallons of water are used per capita each day, and the only course to take to eliminate this waste is to charge each person accordingly, or to stop the leaks. With the meters in each building, the amount of water used here each day could be reckoned, and it would be possible to figure accordingly in ascertaining the amount of water lost. Commissioner George J. Haney is opposed to having the meters installed in every building in the city. He said that it would mean an expenditure to the city of over \$30,000. He said that he did not think the water was being wasted here, but that it was flowing out of the mains somewhere between this city and Runyon. He proposed a much cheaper remedy in the form of a meter at this end of the 24-inch main, with which to reckon the loss on the number of gallons pumped each day, and the number passing through the main in the same space of time. A meter for this would not cost over \$1,000, he said.

Reservoir Bursts; Engineer Hurt

Rotan, Tex.—Sixty thousand gallons of water were lost and Water Works Engineer D. Williamson was seriously injured when the city reservoir burst suddenly last week. The engineer's left arm was broken, his legs and body bruised and it is feared he sustained internal injuries. Williamson had just completed the filling of the tank when its sides burst open, catching him under the debris and washing him down a hill. The huge tank was demolished and the engine house washed away.

City to Lower Water Mains

Salt Lake City, Utah.—In preparing the work of lowering the city water mains on streets about to be paved, Water Works Superintendent Thomas Hobday has a gang of about fifty men in reserve and will start things with a rush with the first of the week. P. J. Moran has already started tearing a hole in the surface of Ninth East street, which is to be paved with asphalt to the southern limits of Salt Lake, and within a short time Strange & Maguire will start the work of paving Third South street from State street to Tenth East. The Water Works Department has all the pipe on hand, and purposes to lay the new mains and lower the old ones without interfering with the progress of the contractors.

Electricity Brings Saving on Pumping

Wahpeton, N. D.—The City Council has made arrangements to operate the city pumping station at reduced cost. Heretofore the city has operated the pumps by steam and the cost of coal alone has averaged \$18 a day, but the use of steam has now been discontinued and electrical power substituted and the cost of operating the pumps has been reduced to \$6 a day. The cheap cost of electricity is due to the fact that it is brought over a cable from Dayton Hollow, near Fergus Falls, where a water-power plant is located.

New Filter Works Well

Wilmington, Del.—Dr. Albert Robin, City Bacteriologist, reporting to the Board of Water Commissioners upon the new filter, said: "The filter shows very well as far as the general bacteria are concerned. It has been my experience that it requires some time for the filter beds to 'ripen,' which includes the washing out of dirt as well as the development of bacteria beneficial to the process of filtration. There is every evidence that the filter plant is getting to that condition now, and the number of bacteria is being reduced every day." The plant has been visited by W. W. De Berard, of the Metropolitan Sewerage Commission, and Mr. McMillan, formerly of the Pittsburg, Pa., filters.

STREET LIGHTING AND POWER

Citizens Vote Down Municipal Heating Plant

Anderson, Ind.—Anderson, in the first special city election ever held, decided by its ballot that it does not want a city heating plant municipally owned. The vote stood 971 against the proposition and 564 in favor of it. The School Board will install a private heating plant for the school building.

Municipal Lighting Plant Saves Money

Pasadena, Cal.—That the municipal electric lighting plant is saving Pasadena \$80,000 or \$90,000 is the statement made by Councilman Mersereau, Chairman of the Council Lighting Committee. Mr. Mersereau's report claims that this saving is on ordinary light bills, while commercial lighting is being furnished at a 7-cent rate; that the municipal company has caused the Edison Company to reduce its rate from 15 cents to 5 cents per kilowatt; that the plant represents an outlay of \$400,000, but 1 cent on each \$1 of assessed valuation, and has been constructed almost entirely from the sale of municipal bonds. These bonds are being retired as they come due by the earnings of the plant, and interest is met also by the same fund.

Want Street Signs Legible at Night

New York, N. Y.—The Merchants' Association has requested Borough President McAneny of Manhattan to consider the adoption of a better type of street sign than those now in use. Complaint has been made that although the ordinary enameled sign is effective in daylight, it is practically illegible at night. It has been suggested that this defect may be overcome by so placing the signs upon an arm or bracket, that they will be illuminated by the light placed above, instead of being cast into shadow as at present. The Borough President will soon take up the matter, and will also seek to provide proper posts for signs at the numerous street corners where they are now lacking.

FIRE AND POLICE

Big Automobile Fire Wagon Proves Success

Berkeley, Cal.—Jack Fleming, the winner of the Portola automobile race, at the wheel, carried Commissioner W. F. McClure, of Berkeley, up and down grade, over all kinds of streets and roads demonstrating the qualities of the new automobile combination chemical and ladder fire wagon. The speedster navigated the fire-fighting wagon at an average speed of 35 miles an hour, and as a result of the tryout, the Berkeley Commissioners will probably order the placing of several automobile fire-fighting vehicles in this city. The experiment was witnessed by Mayor Hodghead, Commissioners Hoff and Norton, who followed the truck over the entire route in a touring car. The machine is valued at \$4,500.

City Hall Burns; Records Destroyed

Cumberland, Md.—Fire destroyed the City Hall, which also contained the Academy of Music, the Masonic and Odd Fellows' Hall and the market house, entailing a loss of \$200,000, with one-third insurance. The bulk of the city records were lost, and all the city offices, with the exception of that of the Chief of Police and the Water Commissioners, were burned out. Adjoining property was saved by the local Fire Department. The Hagerstown Department, on request, held itself in readiness to respond with its apparatus. The fire started on the top floor near the tower, and had gained much headway before the firemen could get a stream to it. The building was of brick, four stories high, and was built in 1874. It was located in the heart of the business district and was the largest structure in the city. Legislative authority is now asked by the city to issue \$100,000 worth of bonds to rebuild.



Courtesy Baltimore News

OLD CITY HALL, CUMBERLAND, MD.

Fire Chief Adopts National Electrical Code

Enid, Okla.—Fire Chief Pillsbury, recently appointed Building Commissioner and Electrical Inspector, is at work systematizing the work of his office. He has adopted the National Electrical code, recommended by the National Fire Underwriters of New York for electrical inspection, and the building code recommended by the same body.

No Frame Houses for Capital City

Harrisburg, Pa.—An ordinance has been passed prohibiting the construction of any frame houses within the city limits.

More Time for Firemen

Montgomery, Ala.—Employees of the Fire Department are jubilant over the passage of the ordinance giving to them ten days vacation a year, and one day off every ten days. Heretofore they have had but a week's vacation, and were entitled to 12 hours off every week. During the vacation period, however, the 12 hours off were not forthcoming, because they had to stay on while one of the members of their respective company was on a vacation.

Fire Department of Two Texarkanas

Texarkana, Ark.-Tex.—According to Chief J. J. Hussey, the dual city now has a full-paid Fire Department of eighteen men, inclusive of himself as joint chief of the two departments. The population of the two cities is about 20,000. It has one combination hose wagon and chemical equipped with ladders, one combination hook and ladder truck and chemical engine, one third-size steam fire engine and heater, two straight hose wagons equipped with ladders, 8,100 feet of good hose and one deluge set. All of the equipment are horse drawn. A contract has been let for an automobile combination hose wagon, chemical engine and pumping engine of 700 gallons capacity per minute, equipped with ladders, 70 horse-power motor, which will be delivered about June 1 of this year, and also for a Gamewell fire alarm system of 40 boxes owned by the city, with assurance of 10 more for factories and other places of business in the city to be privately paid for by them.

Yellow Dogs to Trail Salt Lake Thieves

Salt Lake City, Utah.—The Police Department of Salt Lake may follow the example of the Paris police in the establishment of a corps of trained police dogs. It has already been demonstrated in Salt Lake that dogs, and particularly dogs of the tramp variety, are well adapted to police work, and enthuse over the company of a patrolman who can train him to watch dark alleys and street corners where thieves go in hiding, with greater vigilance than a real bluecoat. Chief of Police S. M. Barlow is enthusiastic over the idea, and in a few months police-dog kennels may grace the backyard of the local station, and during the night every policeman may be accompanied by a real canine detective. In experiments at Paris it has been demonstrated that the semi-mongrel bulldog or fox terrier are most active as police dogs, and can easily be trained, as they seem to have an instinct for finding the scent of a thief. Salt Lake is filled with this type of dogs that have no particular owner. Many of them have already befriended policemen. It has been figured by members of the Police Department interested in the police dog movement that it will cost nothing to obtain 20 dogs, as they may be taken off the streets almost anywhere. The cost of building kennels for them will be but trifling, and their feed can easily be prepared in the kitchen of the city jail. Several patrolmen, already in possession of trained police dogs, have volunteered to train any new recruits.

Change Age Limit for Patrolmen

Milwaukee, Wis.—To obtain more applicants and better material for patrolmen the Fire and Police Commission have raised the minimum age limit for applicants for patrolmen from 22 to 24 years to from 24 to 32 years of age. The time of residence in the city for applicants was changed from three years to one year. John Gregory, secretary, said it was necessary to make the changes to get more material for patrolmen. He also said it has been difficult to get men because of the long time of residence required by the old law.

The New Police Stars Are Issued

Kansas City, Mo.—The new stars and badges ordered two months ago for the members of the police department have been delivered and distributed. There are special designs for each department of the service, as well as for the rank of the wearers. As the stars are distributed the number of each will be recorded, with the name of the officer, and this number will be attached to his club, uniform, revolver and all other police equipment issued.

GOVERNMENT AND FINANCE

Councilmen Refuse to Vote Themselves Out

Florence, Ala.—An attempt to have the City Council cut down its own size by reducing the number of wards from seven to four, or even three, has failed, the Councilmen, while admitting it is too large, frankly refusing to vote themselves out of a job. The State municipal code, providing for two Aldermen from each ward and a President of the Council, deluged Florence with 15 Aldermen, the ponderousness of the Council having the effect to almost block business and as a result the affairs of the municipality, it is said, were never in such a disorganized state.

Charter Framers Converted to Commission Idea

Newark, N. J.—After spending over a year in considering charter reform, and having evolved a charter 62 pages long, the Newark Charter Revision Commission shows strong symptoms of having been converted to the commission government theory. The charter which is now before the Legislature is not being strongly supported by them, and probably will not be passed. Chandler W. Riker and William P. Martin have favored the commission idea ever since the creation of the Charter Commission. City Counsel Nugent announced his conversion several weeks ago. City Clerk Connelly has also joined the ranks of the radicals. The work already done, it is said, has not been wasted, but will be a factor in the final determination. Meetings will be held every two weeks which will relate to the fundamental ideas of the new charter.

Experts Praise Financiering of Commission Government

Haverhill, Mass.—One of the most emphatic indorsements of the commission form of government and unstinted praise for the administration under Mayor Edwin H. Moulton, made apparent in a mass of facts and figures gathered after an exhaustive search of the city's financial record, is in brief the result of the examination recently conducted by Harvey S. Chase & Company, of Boston, made public in their report submitted to the municipal council recently. The experts show conclusively how old methods, whereby no one at City Hall seemed to know the exact condition of the city treasury, have been replaced by new ones; how the 1909 administration was painstaking in making sure that all current expenditures were met by current receipts, in contrast to the lax methods displayed by those in power in 1908, and how, most important of all, the city was run within its income per the \$12 tax rate, a feat which the report says had not been accomplished for years. In figures the statement says that at the end of the fiscal year, 1909, there was a surplus of \$36,511.87 in the treasury as compared to a deficiency of \$79,451.66 at the same period in 1908, making the showing of the 1909 administration \$115,963.53 better than that of the preceding administration. The margin of revenue inside the \$12 tax limit, over expenses, was \$6,867.73, this figure proving beyond any question or doubt that Mayor Moulton lived up to his campaign promises of 1908. On this one point the accountant says that "such a result has not been achieved in Haverhill for many years. The present administration deserved much commendation for its foresight and vigilance in supervising the city's expenditure and in holding down the totals to the limits indicated."

Last Councilmen Were Good Financiers

Chambersburg, Pa.—The following résumé of the deeds of the Council whose life expired on March 7 was adopted: "The present Council entered office with a current debt to meet amounting to \$23,243.77. Of this amount, \$11,301.73 was in unpaid bills of a few cents up to \$3,500, the Paddock bill, and the balance, \$11,942.24, was for notes in bank and to individuals. To offset this indebtedness there was \$2,272.95 in the borough treasury. All of the above unpaid bills have been paid, as well as all bills contracted for by the present Council. All of the notes to individuals have been paid, and \$1,500 on the bank notes, amounting in all to \$3,942.04. Of the \$122,000 of bonds none had been cancelled for several years, former Councils being satisfied to pay the interest upon the same. The present Council paid the interest as usual, and also cancelled \$10,000 worth of bonds.

City Now a "Union Shop"

Pittsburg, Pa.—Pittsburg is to be a "union shop" so far as city employees are concerned, according to an announcement made recently by Director of Public Works Joseph G. Armstrong. The director stated that hereafter all applicants applying for city jobs must be union men, and that in case the Civil Service does not certify union men to him he will insist upon the appointees joining a union before going to work. Armstrong states that he promised this to the unions when he with other city officials was stumping the city in a bond issue campaign last fall. He argued before the salary revision committee recently that all city labor be paid "current union wages" and aided in having the wages of all city employees advanced.

City Adopts New Set of Laws

Ogden, Utah.—Revised ordinances of Ogden City, which have been prepared after considerable expense, are now being printed and will be ready for use in a few days. Four years ago a decision was handed down by the District Court holding that the ordinances in their present form were not legal because they had not been passed upon by the City Council in the manner prescribed by the statute. Many efforts had been made to revise the ordinances, but not until the present city administration took charge has it been found practicable to do so, and numerous special sessions of the City Council have been held at which the 1,048 sections have been read and passed upon in a legal manner. All superfluous verbiage has been stripped from the old ordinances, and many of the antiquated laws have been entirely eliminated.

"Hobo" Bonds to Protect Cities

Yonkers, N. Y.—Novel bonds, aggregating \$10,000 in value, have been filed with Mayor Lennon by two of the construction companies in charge of the New York reservoir work in East Yonkers. The bonds are legally known as "Hobo Bonds," and are issued as a result of a clause inserted in the contract for the work, drawn up by the New York City authorities to protect the cities and villages where New York reservoir work is performed. The "Hobo Bonds" are of recent origin, and their work is to protect cities and towns from any liability as to the care of paupers, hoboos or ne'er-do-wells, who are imported to reservoir jobs by contractors. For instance, if a laborer employed on the New York reservoir, to be constructed in East Yonkers, were to be incapacitated, or in some other way become a public charge, the expense of taking care of him will be borne by the contracting company instead of by the city. It also means that the contracting companies must bring to their jobs only men who are workers. If they bring a man here who refuses to work they must get rid of him or their \$5,000 bond is forfeited. The companies that filed the bonds were the Jackson Construction Company and the Keystone Contracting Company, the bonds were furnished by the Title Guarantee and Surety Company of Scranto, Pa., being surety. Following is the clause in the contract of New York City with the contractors that calls for the "Hobo Bonds":

This contract shall not take effect until the contractor or employer of labor to be engaged in the construction of any of the work herein provided for, shall give to the municipality in which such labor may be employed, a bond in the penal sum of five thousand dollars, conditioned to indemnify and save such municipality from any loss that it may legally incur because of paupers or indigent employees brought into said municipality and having no settlement therein, such bond to be approved by the chief executive officer of such municipality.

Board of Health "Fired"

East Liverpool, O.—For the first time since its incorporation this city is without a Board of Health, the result of a fight in Councils which resulted in the discharge of the Board and its work being placed upon the Service Department. The change is the outcome of the Board of Health's action in appealing to the State Board for garbage disposal and water filtration.

STREET CLEANING AND REFUSE DISPOSAL

Water Wagon Strikes Snag

Mays Landing, N. J.—When more than 100 residents recently signed an agreement to pay for the support of a water sprinkler next summer, a project that had been talked about several years, they thought they had the matter cinched; but the Township Committee has forbidden them to use water from the public supply. If the streets are sprinkled, it will have to be with water from the river or lake, say the water officials.

Engineer Praises Incinerator

Milwaukee, Wis.—"The Milwaukee garbage incinerating plant is the finest in the world," said Rudolph Hering, New York, on his way from Minneapolis, where he spent three weeks in solving the sewage problem. "I am pleased with the plant and expect to be here when the official test is made. It is the best institution of its kind, and will take care of the refuse in the most efficient method that can be devised." Dr. Hering is a member of the firm of Hering & Fuller, New York, consulting engineers for the incinerator.

Flushing Schedule to Be Broadened

Rochester, N. Y.—Commissioner of Public Works Elwood is planning for a more comprehensive flushing of streets the coming summer than has been possible in the past. The success of this comparatively new method of cleaning public streets of asphalt, brick, bitulithic or stone material has caused the Commissioner to purchase two additional flushing machines for next season's work. Last year the city had two. The flushing schedule will provide for the flushing of important business streets every night and other streets twice or three times weekly, in accordance with their needs. Main street will be washed clean every night after the traffic reaches its minimum.

Woman Invents Street Sweeper

Oakland, Cal.—Representatives of the city government, of the Anti-Tuberculosis Society of Alameda County, of the Chamber of Commerce and of the women's clubs have been invited to attend a demonstration of a street-sweeping machine which is the invention of Mrs. Elmer Woodbury, of this city. Mrs. Woodbury has been at work on the invention for many months, and those who have seen the sweeper in operation say that through it a vexatious problem of city street work is in a fair way to be solved. The inventor claims that the machine is chiefly valuable because of the sanitary features embodied. It is built from the combined principles of a carpet sweeper and a compressed air or vacuum cleaning machine, and is operated by one man.

Contest on Garbage Contract

Los Angeles, Cal.—The fight between P. J. Durbin and Charles A. Alexander over the garbage contract for several hotels and restaurants was called before Judge Moss, of the Superior Court, in the form of an order for Alexander to how cause why he should not be restrained from collecting the garbage from the places mentioned in the complaint. Durbin claims a contract entitling him to the garbage and alleges he has \$100,000 invested in the business. He charges that Alexander by pretended right is attempting to take the business away. Joined as plaintiffs are the Jonathan Club, Hart Brothers, Snyder & Fisher, Boos Brothers, Westrum Brothers, the Angelus, Hayward, Alexandria and Hollenbeck hotels, with which Durbin claim a contract right for the collection of garbage.

Borough Will Place Waste Paper Baskets

West Chester, Pa.—In the movement for a city beautiful Burgess P. E. Jeffries will request the Borough Council to have installed on the streets boxes in which to throw waste papers and other refuse, and an ordinance will be enacted to punish the throwing of waste materials of any sort in the streets. All the alleys of the town are to be inspected and thoroughly cleaned up, and residents will be urged to white-wash all their backyard fences.

RAPID TRANSIT

Hoboken Bars United States Mail Car from Street Railway

Hoboken, N. J.—A clash is expected between the Common Council of Hoboken and the United States Government over an ordinance that was recently adopted by the Council prohibiting the Public Service Corporation from operating any but "passenger cars" over its lines in Hoboken. A United States mail car uses the rails at present. Corporation Attorney John J. Fallon gave an opinion that the trolley company can operate only passenger cars legally. For several months the company has been carrying mails between Bayonne, Jersey City, West Hoboken and five other North Hudson municipalities. These mails are carried in a car especially constructed for such service. Under the opinion of the Corporation Attorney the company must withdraw this car and either deliver mail in passenger cars or not at all. The City Clerk has been directed to notify the Public Service Corporation to withdraw all cars not used for transporting passengers. The new ordinance also bars all repair and wrecking cars, and also sweepers and snowploughs.

Subway for West Side, Providence

Providence, R. I.—Councilman Henry A. Grimwood is urging a plan for a subway for the West Side, designed to relieve the car congestion on the downtown streets. The subway as proposed would be 2,200 feet in length and contain two tracks. On the basis of the cost of the first Boston subway, \$342 per linear foot, the total expense would be \$750,000. The entrance to the subway would be just above the junction of Broad and Weybosset streets.

Pay When You Get Inside Hereafter

Yonkers, N. Y.—The pay-as-you-enter cars on South Broadway have been converted into conveyances of the older type. Passengers, as a consequence, do not have to pay their fares until seated, and the other comforts are being enjoyed now which were denied before. This has occurred as a result of the objection to the pay-as-you-enter cars.

MISCELLANEOUS

Plans for Civic Center in Atlanta

Atlanta, Ga.—Haralson Bleckley, president of the Architectural Arts League of Atlanta, has made plans and placed them on exhibition for a civic center for Atlanta. In brief, Mr. Bleckley proposes to arch the gorge occupied by the railway tracks with a floor of concrete level with the viaducts from Forsyth street to Washington street, a distance of about a quarter of a mile, and this boulevard he proposes to line with trees and adorn with fountains and flower plats. On the boulevard, where the Union Passenger Station now stands, he proposes to erect a great twenty-five-story building to serve the three-fold purpose of a depot, as at present, with a waiting room and offices on the boulevard level, municipal offices above, and finally, business offices on the floors above again. The Forsyth street end would be occupied by a public comfort station equipped with baths, gymnasium and kindred utilities for the use of the people. The project is estimated to cost \$4,000,000.

Curfew Law for Atlantic City Newsies

Atlantic City, N. J.—A curfew law for Boardwalk newsboys has been established by Police Chief Woodruff, who has ordered that no papers shall be sold on the walk after 11 p. m. A decision that youngsters should be home an hour before midnight is given as the reason for the order.

Quarter-Millennium to Be Celebrated

Jersey City, N. J.—Preparations are being made by city authorities and civic bodies for the celebration of the 250th anniversary of the settlement of the town of Bergen on what is now Jersey City Heights. A bill has been introduced in the Legislature permitting the city to appropriate funds for the celebration.

Public Baths for Coney

New York, N. Y.—Private bathhouses occupying city property at Coney Island will probably be displaced by big municipal baths during the coming summer. Comptroller Prendergast, after a personal investigation of city property at Coney, sent Charles O'Malley, head of the Real Estate Bureau in the Finance Department, to Boston to inspect the system of municipal baths maintained at Revere Beach. Comptroller Metz discovered last summer that several acres of beach purchased by the old city of Brooklyn years ago was in control of private interests which operated baths and kept the public from using the beach at all. He notified the police to see that the public had full access to the beach at all times. Mr. Prendergast declared that he proposed to have the beach opened for small family picnic parties, and declared that the city should build bathhouses on its own property to the east of Ocean avenue, excluding the private interests altogether.

Inspection Tax on Billboards

Omaha, Neb.—The City Council has passed an ordinance providing for an inspection tax of 25 cents on each billboard of 25 feet or less in length and 50 cents on each board more than 25 feet in length. There was no division.

Farmers Object to Lights on Vehicles

Providence, R. I.—Strong opposition has been made before the Senate Judiciary Committee by farmers from all over the State to the measure requiring that all horse-drawn vehicles carry one light at night and it was charged that the dust kicked up by autos would render lights useless. The measure provides that:

Every vehicle drawn by an animal or animals while in use upon the public highways of the state shall, during the period from one hour after sunset until one hour before sunrise, have attached thereto and displayed a light so placed as to be clearly visible both from the front and rear of such vehicle, provided that this act shall not apply to the use of such vehicle upon those parts of any highway located in any city or town where such highway is artificially lighted by electric arc lights, spaced not more than 500 feet apart.

A fine of \$10 is provided for infractions of this provision in the law. The law is to take effect July 1, this year, if it is passed. There are 20,000 licensed and 5000 unlicensed vehicles in Providence alone, and it would cost \$5 to install and maintain lights on each vehicle.

Chicago Places Ban on Hatpins

Chicago, Ill.—It is now a misdemeanor for any woman to wear a long hatpin in public in Chicago. Any woman caught wearing one is liable to arrest and a fine of \$50. After a month's discussion the City Council, by a vote of 68 to 2, last week passed an "anti-hatpin" ordinance, despite many hisses and "boos" from the galleries, where a crowd of women had gathered to protest. The ordinance decrees that "no person" while in public shall wear any hatpin, the exposed point whereof shall protrude more than one-half inch beyond the crown of the hat.

'Frisco Would Limit Protrusion of Hatpins

San Francisco, Cal.—J. B. Edwards has petitioned the Supervisors to pass an ordinance making it unlawful for hatpins to protrude more than a half inch from either side, back, top or front of hats.

East St. Louis Would Regain River Front

East St. Louis, Ill.—The river front committee of the Commercial Club has submitted a report which takes the ground that the city owns and should control the river front. The claims of the Wiggins Ferry Company are declared to be invalid, and it is recommended that the city immediately take steps to oust the Wiggins Ferry Company from occupancy of the river front to the exclusion of others. The river front in question is five miles long, and is said to be worth \$20,000,000.

Market Inquiry Made by Mayor

Syracuse, N. Y.—Mayor Edward Schoeneck has written the mayors of twenty cities seeking information on the question of public markets. Mr. Schoeneck is greatly interested in the market question in view of the present agitation for a new market on the North Side, to cost \$200,000, for a market on the South Side and for new regulations for the existing city market which will make it wholly for the benefit of the consumer, the producer and the Syracuse dealers who seek to buy produce at wholesale. Mr. Schoeneck wants to know if the markets maintained by various cities are utilized by the public to as great an extent as they were twenty or twenty-five years ago. He has asked this question in his letter sent out to his brother mayors, seeking to learn if there has been a general change from the old-fashioned methods of buying truck farm produce, poultry and other provisions for family use. He also makes inquiry as to what extent public markets are limited in the various cities to the uses of the producer and consumer and to what extent hucksters and middlemen are permitted to take advantage of the market privileges.

How National Capital Will Celebrate the "Fourth"

Washington, D. C.—The "Safe and Sane Fourth" received a boost at a meeting of the joint committee in the office of the Chairman Cuno H. Rudolph, President of the Board of District Commissioners, and W. V. Cox, the treasurer of the celebration, will start immediately to attend to the financing of the great public show. Commissioner Rudolph will take up the question of a suitable street pageant, composed of tableaux of historical events, and, in addition, it is proposed to enact some of the scenes from the city's history upon the original sites, if possible. The day and night fireworks have not been left out of the calculations, nor have the band concerts and the outdoor morning meeting been overlooked. A Potomac River regatta may also be a feature. The success of the pageants, and everything connected with the day, however, depends largely upon the money to be subscribed by the people of Washington. It is expected that Mr. Cox will appoint a committee of 100 to help him with this important feature of the arrangement. It also is expected that there will be neighborhood fireworks exhibits similar to those held last year by various suburban citizens' associations. The committee is inclined to favor these suburban night firework displays, under competent and reliable management, and when confined to genuine suburbs, at a considerable distance from the downtown districts. There will be no fireworks of any kind for personal use permitted to be sold, or stored, or delivered in the District, so that the committee hopes that money which would otherwise go to buy firecrackers and skyrockets for individual celebrations will be turned over for this general public demonstration.

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities

Street Improvements—Intersections—Proceedings

State ex rel. Bowen vs. Board of Commissioners of City of Sioux Falls.—Where a street improvement resolution expressly recited that the cost of street intersections would not be included in the special assessment, and the cost of intersections was not included in the resolution as a part of the proposed assessment, the inclusion of the cost of such intersection was wholly without the improvement proposed to be made, and the City Commission and Engineer had no jurisdiction to include the cost of such intersection pro rata against abutting property, and their doing so rendered the assessment void.—Supreme Court of South Dakota, 124 N. W. R., 963.

City Building and Auditorium—Powers

Brooks vs. Incorporated Town of Brooklyn et al.—An incorporated city situated in a farming community with a population of 1,200 has no power to erect a city building designed for an opera house with an auditorium, box office, ticket window, stage, balcony, dressing rooms, etc., though of the floor space of about 6,000 square feet 1,200 square feet is to be used by the city government for offices, fire department, etc.—Supreme Court of Iowa, 124 N. W. R., 868.

Assessment—Frontage

Village of Oakwood vs. Stoecklein.—Since the Municipal Code passed October 22, 1902, repealed section 2264, Revised Statutes, and defined the following mode of assessing the costs and expenses of street improvements, "by the foot frontage of the property bounding and abutting upon the improvement," the rule of assessment laid down in Haviland et al. vs. City of Columbus et al. is abrogated, and municipalities are authorized to assess upon an entire lengthwise frontage of a lot abutting upon the improvement.—Supreme Court of Ohio, 90 N. E. R., 941.

Violation of Ordinance—Trial—Irregularities

Backus vs. City of Atlanta.—The defendants were tried jointly for a violation of a municipal ordinance. They were not represented by counsel, and the witnesses against them were not cross-examined, and one of the defendants was not served with a summons. Held, no error, requiring the grant of another trial, where there was no request by either defendant for a separate trial, and no request to be allowed to cross-examine any of the witnesses, or refusal of such request, and where the defendant who was not served with summons did not demand to be served with one before the trial.—Court of Appeals of Georgia, 66 S. E. R., 1036.

City Work—Subcontractor

Wilson vs. Record.—In an action by a subcontractor against a contractor with a city, where, though the complaint failed to state a cause of action on defendant's bond to the city, it averred sufficient facts showing a right of recovery for all work done by plaintiff under the written contract between the parties, and for extra work alleged to have been done by plaintiff at defendant's request, and issue was joined, defendant could not on appeal question the theory of the complaint.—Appellate Court of Indiana, 90 N. E. R., 906.

Police Powers—Life Guards

McCorkle vs. Common Council of Ocean City et al.—The ordinance of June 21, 1909, providing for the appointment of life guards to patrol the beach and protect life, is a legitimate exercise of the police power conferred upon Ocean City by its charter.—Supreme Court of New Jersey, 75 A. R., 154.

Use of Streets—Pavilion

Sea Isle City Realty Company vs. Sea Isle City et al.—The right of ownership to the center line of a street by an adjoining property owner is subject to the public use expressly conferred by the deed of dedication. Certiorari does not lie to review a contract by the Common Council of a city to construct a music pavilion where, before the writ is allowed, the pavilion is built, and it is being used by the public.—Supreme Court of New Jersey, 75 A. R., 173.

Moving Houses—Wires in Street

Edison Electric Light and Power Company of St. Paul et al. vs. Bloomquist et al.—The use of the streets of a city for moving houses is an unusual and extraordinary use, and they cannot be so employed by a house mover without permission from the city authorities. Appellant secured a permit to move a frame house along certain streets, and the permit contained the following restrictions: "This permit does not allow interference with wires or any other obstructions on the above route." Held, respondents having been lawfully in possession of the streets with their wires and lamps at the time of the issuing of the permit, appellant's right to the use of the streets was limited, as provided by the permit, and that he possessed no legal right to interfere with the wires and lamps for the purpose of moving the house; that the trial court was justified in enjoining appellant from such interference, except upon the condition that appellant give respondent reasonable notice to remove its wires, and that appellant execute a bond to pay the reasonable expense thereof.—Supreme Court of Minnesota, 124 N. W. R., 969.

Municipal Corporation—Payment of Interest

State ex rel. Courthouse Commission vs. Board of Liquidation of City Debt of City of New Orleans.—Section 9 of Act 96 of 1904 required the Board of Liquidation of the City Debt to pay, from moneys collected by it from the city of New Orleans prior to January 1, 1909, for the construction of a courthouse, first, the "interest which may accrue" on the bonds which may theretofore have been issued under the authority of the act; and then, after reserving \$37,500 (being the amount needed to insure the payment of such interest to fall due in the following year), to apply the balance of such moneys to the payment of the certificates (or warrants) to be issued for construction and other expenses by the Courthouse Commission. Compliance with those requirements takes nothing from the ample security upon the basis of which the bonds in question were issued.—Supreme Court of Louisiana, 51 S. R., 283.

Public Nuisance—Sick Horse

Mezlar vs. City of Miles et al.—A horse, left by the owner in charge of a livery stable keeper, became sick with an incurable disease, and when it became a public nuisance it was killed, pursuant to the instructions of the Mayor and Aldermen and the town Health Officer, and at the request of the livery stable keeper. Held, that as the city had the right under the Revised Statutes of 1895 to summarily abate such a nuisance, calculated to affect the public health or comfort of its inhabitants, the owner was not entitled to recover even nominal damages from the city or the other parties concerned, on the ground that a trespass was committed because they did not get his consent, he being absent at the time.—Court of Civil Appeals of Texas, 124 S. W. R., 972.

Defective Sidewalk—Sufficiency of Notice

Weinhardt vs. City of New Orleans.—Notice to a Councilman that a walk is in need of repair is sufficient notice to the city, for a Councilman is charged with a duty in regard to the repairs of streets.—Supreme Court of Louisiana, 51 S. R., 286.

Ordinance Regarding Crimes Against State—Validity

Kreulhaus vs. City of Birmingham.—An ordinance providing that all offenses that are misdemeanors under the laws of the State, as defined by statute or by the common law, are hereby declared to be misdemeanors under the ordinance of the city, is void, because indefinite as to what offenses, as affecting the municipality, were intended to be included, municipalities not having power to punish crimes against the State in general.—Supreme Court of Alabama, 51 S. R., 297.

Drains—Authority to Locate

Greek et al. vs. Joy.—Township Trustees have jurisdiction to locate and construct a ditch within the township, where it commences on farm lands without the limits of an incorporated village, and extends into or through such village to an outlet.—Supreme Court of Ohio, 90 N. E. R., 932.

NEWS OF THE SOCIETIES

Kentucky Municipal League.—At the meeting of the executive committee of the Kentucky Municipal League, at Louisville, March 18, it was advocated that a central bureau of information be maintained by the league, this bureau to provide for all cities of the State data upon the cost of paving, the durability of various materials and with regard to other municipal improvements. As the information would be based upon experiments in cities throughout the country, the expense to individual cities of sending committees and delegates on expensive trips to obtain such knowledge is eliminated. The plan will be submitted at the annual meeting later in the year.

Associated Boards of Health of Bergen County.—Prof. A. Prescott Folwell, editor of "Municipal Journal and Engineer" and Secretary of the American Society of Municipal Improvements, addressed the Associated Boards of Health of Bergen County March 22 at the Elks' Club Hall, Hackensack, on sewage disposal, with special reference to northern New Jersey. He favored the co-operation of the different municipalities in building systems when such a move was practical.

Illinois Water Supply Association.—Officers of the association were elected at the closing session of the second annual meeting at Champaign, Ill., March 11. C. E. Slocum, superintendent of the Bellville Water Company, was chosen as president. Other officers were elected as follows: First vice-president, O. T. Smith, secretary-manager of the Freeport Water Company; second vice-president, R. R. Parkin, superintendent of the water department at Elgin; third vice-president, C. H. Cobb, superintendent of the Kankakee Water Company, and secretary-treasurer, Edward Bartow, University of Illinois, Director of the State Water Survey.

Minnesota Good Roads Association.—The gathering of the Conservation Congress has been made the occasion for the meeting in St. Paul of the Minnesota Good Roads Association. Sessions were held yesterday morning and afternoon. In the evening the delegates to the meeting suspended their work to listen to the addresses at the Auditorium. The speakers were all men of wide experience in the field their addresses covered and included George W. Coley, State Highway Engineer; George M. Palmer, of Mankato; M. O. Eldridge, senior assistant in road management in the Department of Agriculture; Robert C. Dunn, of Princeton, and Chairman M. J. Dowling.

Mount Pleasant Citizens' Association.—The excellent civic conditions of Washington, D. C., were lauded by Richard W. Watrous, secretary of the American Civic Association, in an address to the newly formed association at a meeting held at the Parker, March 16. He said that though the civic progress of Washington is one to be commented upon favorably whenever the question of progress along civic lines is brought up for discussion, still there is much to be done. Mr. Watrous commented at some length on the fact that the American Civic Association has taken up its headquarters in this city, and said that the leaders in the work had been induced to come here principally on the ground that Washington, the center of the country, was making civic progress.

Association of Commerce of Chicago.—A meeting of representatives of all civic associations of Chicago will be called soon by the convention bureau of the association to carry out details of the international municipal congress and exposition which will be held in Chicago in September, 1911. Answers to invitations to participate, sent out to the Mayors of all cities of the country of more than 50,000 population, and to about 200 civic and municipal organizations are pouring in, and assure exhibits from most of the cities. Invitations to the Mayors of all large foreign cities will be mailed out at an early date.

Galesburg Highway Improvement Association.—At a meeting, March 12, at the City Hall, State Engineer Johnson delivered an illustrated lecture dealing largely with the question of bridges. Earth roads and macadam roads were also illustrated and the best methods of making them discussed. Mayor A. R. Keeler of Altoona also addressed the meeting and told of the work done in his village, which Mr. Johnson said had the best-kept village street of any place he had visited. Allen A. Green, secretary, said that the association would co-operate with the Commissioners in improving roads around Galesburg.

Indiana Municipal League.—The executive committee of the Indiana Municipal League met in Richmond, Ind., March 18, for the purpose of preparing a program for the annual session of the league to be held at Richmond June 21, 22 and 23. Mayors Darrow of Laporte, Fickle of Logansport, Harper of Madison, and Laurence Becker of Hammond, together with B. A. Bescher, City Clerk of Richmond and secretary of the league, constituted the committee. Among those assigned subjects during three days of the meeting are Mayors W. W. Zimmerman of Richmond, France of Huntington, Thos. C. Knotts of Gary, Wilson of Wabash, and Heilman of Evansville; A. B. Cunningham, City Attorney of Lafayette; Charles R. Johnson, of Madison; T. B. Gardner, City Attorney of Richmond; John Brays, Mayor of Brazil; B. H. Campbell, City Attorney of Elwood, and James E. Burke, Mayor of Jeffersonville; Mrs. M. F. Johnston, of Richmond, one of the best-known leaders in the civic reform movement in the Middle West, will address the league at one of the sessions.

The subjects assigned embrace every phase of municipal government, and special attention is to be paid to municipal ownership problems, water supplies for cities and towns, public utilities, district workhouses and franchises.

The question as to whether the General Assembly should raise the constitutional limit of municipal indebtedness will be one of the important matters to be considered. The league's members seem to think there is still room for improvement in the cities and towns' act, and will consider amendments.

The following standing committees were named by the executive committee:

Civic Improvements.—David A. Davidson, of Princeton; Charles Getz, of South Bend, and Charles H. Paddick, of Portland.

Program.—Lemuel Darrow, of Laporte; George I. Harper, of Madison, and George Durgan, of Lafayette.

Resolutions.—Dr. E. C. Loehr, of Noblesville; Frank Smith, of Bluffton, and Willard Stiers, of Aurora.

Auditing.—M. N. West, of Crawfordsville; Joseph A. Stevenson, of Bedford, and W. H. Bartel, of Richmond.

Legislative.—R. O. James and S. L. Shank, of Indianapolis; John J. Harris, of Bloomington; Laurence Becker, of Hammond; Lemuel Darrow, of Laporte, and J. D. McDowell, of Vincennes.

City Improvement Association of Scranton.—Suggestions for a comprehensive city plan, embodying the annexation of Dunmore, the founding of a system of boulevards and parks to embrace 700 acres of land, streets following the natural curves, and grouping of public buildings around open spaces, were offered last evening by John Nolen, landscape architect of Boston, in an address to an audience which comfortably filled the main floor of the Y. M. C. A. auditorium. Former Mayor J. Benjamin Dimmick presided and introduced Mr. Nolen to the audience, which was made up principally of business men and financiers of the city, and their wives. Representing the city administration there were present: Director of Public Safety W. G. O'Malley, Director of Public Works C. V. Terwilliger, City Treasurer Thomas R. Brooks, City Assessor Dan Watkins, Select Councilmen E. L. Merriman, Milton W. Lowry and John E. Roche, Common Councilmen Anthony Loughney, W. J. Torrey, D. J. Thomas and F. Lamot Belin, Superintendent of Schools George Howell and School Controllers Charles H. Welles, Jr., and Benton T. Jayne were also present. After Mr. Nolen had delivered his talk, it was announced by the officers of the association that a landscape architect would be engaged within a few weeks to make an examination of the city and point out just what is needed to make the city more beautiful. There is a possibility that Mr. Nolen may be retained to do this work, but, at any rate, a competent man will be secured to show the members of the association and the public in general how the chances necessary may be put into effect.

American Water Works Association.

—It has been finally decided that arrangements be made with the Pennsylvania Railroad for transportation to the New Orleans convention. The train will leave Jersey City at 4:45 p. m., Saturday, April 23, arriving at New Orleans at 7:50 a. m., Monday, April 25. If 100 passengers are secured east of Harrisburg a train de luxe will be furnished. The fare will be \$33.15; berth, \$8. Arrangements can be made to return by water on the S. S. Momus, leaving New Orleans Saturday, April 30, arriving at New York Thursday, May 5.

Calendar of Meetings

April 6.

American Society of Civil Engineers.—Regular meeting, Society House, New York.—Charles Warren Hunt, Secretary, 220 W. 57th st., New York, N. Y.

April 26-30.

American Water Works Association.—Thirtieth annual convention, Gruenwald Hotel, New Orleans, La.—J. M. Diven, Secretary, Charleston, S. C.

May 2-4.

National Conference on City Planning.—Second annual conference, Rochester, N. Y. Flavel Shurtleff, Secretary, 19 Congress Street, Boston, Mass.

May 5-7.

American Electrochemical Society.—Annual Meeting, Pittsburg, Pa.—J. S. W. Richards, Secretary, South Bethlehem, Pa.

May 6-7.

Appalachian Engineering Association.—Annual meeting, Winston-Salem, N. C.—Harry M. Payne, Secretary, Morgentown, W. Va.

May 17-19.

National Fire Protection Association.—Annual Meeting, Chicago, Ill.—Frank H. Wentworth, Secretary, 87 Milk Street, Boston, Mass.

May 27-29.

Louisiana State Firemen's Association.—Fifth Annual Convention, Lafayette.—Wm. J. Kleinpeter, Secretary, Gretna, La.

PERSONALS

CALLAN, COL. L. H., Surveyor of Highways, of Bistol, R. I., has been re-elected by the Town Council.

DAVIS, HOWELL A., Mayor of Palatka, Fla., has been renominated by acclamation, the nomination is equivalent to election.

DEHLER, HENRY, Assistant Chief of the Fire Department of Dover, Del., has been dismissed by City Council for misconduct, and James T. Kerr has been made First and Adelbert P. McDavit, Second Assistant.

HEADEN, WILLIAM R., instructor in the Rennselaer Polytechnic Institute, and deputy City Engineer of Troy, N. Y., has resigned the latter position, since its duties now require the entire time of the incumbent. Frank A. Hermans has been appointed to the position.

HENNESSY, WILLIAM P., who recently severed his connection with the Park Department in the Borough of The Bronx, where he held the position of principal assistant engineer, resigned for the purpose of forming a partnership with Robert R. Fox to engage in engineering and contracting work. The firm is known as the Fox-Hennessy Company, and its offices are at 81 East 125th street, New York. Mr. Hennessy was connected over 11 years with the department and his resignation was accepted with regret by Commissioner Higgins.

JOHNSON, WILLIAM S., Boston, Mass., has been retained by Geneva, N. Y., to investigate its sewage disposal and water filtration problems.

JONES, EDWARD, West Hazelton, Pa., has been elected Chief of Police.

JONES, JOHN A., City Engineer of Lewiston, Me., has been re-elected.

LONGENECKER, HIRAM P., Night Sergeant of Steelton, Pa., has been elected as Chief of Police by Council, succeeding Irvin Durnbaugh, who served five years in the office.

MEYER, H. C., Rockdale, Tex., has been elected Mayor.

MCGREGOR, H. J., Commissioner of Public Works of Tacoma, Wash., has resigned in order to become eligible as a candidate for one of the Councilmanic positions under the new commission form of government.

MITCHELL, G. S., Town Marshal of Muncie, Ind., has been re-elected over William Lacey and John Cox.

MURRIN, MRS. JENNIE, Freeland, Pa., has been elected Borough Treasurer.

NAYLOR, R. B., Wheeling, W. Va., J. S. Butts and Henry W. Schreke have been appointed members of the Park and Playgrounds Commission.

NORTON, WILLIAM F., Chairman of the Board of Water Commissioners of Woonsocket, R. I., has been re-elected, as have also Superintendent Arthur F. Ballou, who is also Assistant Clerk, and Alphonse, Gaulin, Clerk.

O'HARA, MICHAEL J., Hudson, N. Y., has been appointed Superintendent of Public Works.

PARKER, ALBERT H., Anderson, Ind., has been appointed Street Commissioner by Mayor Foster.

PERRY, JOHN H., Superintendent of Sewers of Newport News, Va., has resigned, the department will now be placed under the direct supervision of the City Engineer for purposes of economy.

PLYLE, DR. J. L., has been elected Mayor of Chester, W. Va., over George A. Hudson.

SHEFFIELD, MASON H., and Herman Loewenherz have been appointed structural draftsman and Walter W.

Cohen, assistant engineer, on the engineering corps of the Board of Water Supply, New York.

SHAUGHNESSY, PATRICK, Chief of the Fire Department of San Francisco, Cal., has been retired, and Captain Thomas R. Murphy, who had been reduced by Chief Shaughnessy, has been promoted to Chief. Chief Shaughnessy is 57 years old and has been in the department 24 years, and became Chief on the death of Chief Sullivan in the earthquake, April 18, 1906. Chief Murphy is 39 years old and has been in the department 18 years.

SHEPPERD, O. B., Mayor of St. John, Kan., died of heart failure while driving his motor car with his wife and two guests recently.

SORTWELL, ALVIN F., Chairman of the Water Commission, and former Mayor of New Bedford, Mass., died last week, aged 58 years.

SWIFT, R. A., has been re-elected City Engineer of Auburn, Me.

THOMAS, ROBERT J., Superintendent of the Water Board of Lowell, Mass., has been re-elected for his twenty-first term.

VAN TASSELL, ROBERT W., Lowell, Mass., has been elected President of the Water Board, succeeding Major Robert J. Crowley, who declined re-election, after six years' service.

WAPPENSTEIN, CHARLES W., Chief of Police of Seattle, Wash., in 1906-1908, has been reappointed to the position by Mayor-elect Hiram C. Gill; he was at one time Chief of Detectives of Cincinnati, O.

WATERHOUSE, TITUS H., Captain of Truck No. 5, Rochester, N. Y., has been placed in charge of the firemen's training school by Commissioner of Public Safety Owen.

WELCH, L. D., City Marshal of Alexander City, Ala., died suddenly, recently, of neuralgia of the heart, aged 40 years.

WHITE, E. E., Tacoma, Wash., has taken office as City Treasurer, succeeding Ray Freeland.

WILLIAMS, GEORGE W., Hollidaysburg, Pa., has been elected President of the Borough Council.

Councils in Pennsylvania boroughs held reorganization meetings, when officers for the ensuing year were chosen as follows:

Archbald—President, John Schemel; Secretary, T. J. Munley; Treasurer, P. C. Cummings; Road Supervisor, William Brennan. Aspinwall—Chairman, George Smith; Chief of Police, William Calloway.

Avalon—President, Alfred G. Liddell; Secretary, Charles J. Eaton; Treasurer, G. Howard Stewart; Solicitor, George G. Lewis; Engineer, McBride Surveying & Engineering Company; Commissioner, Robert C. Crick.

Avoca—Chairman, John M. Graham; Secretary, A. J. Healey; Treasurer, John F. McLoughlin; Street Commissioner and Chief of Police, A. J. Healey.

Bellevue—President, F. F. Bowman; Secretary, J. M. Simeral; Treasurer, F. A. East; depository, Bellevue Realty, Savings & Trust Company; Solicitor, F. L. Starr; Street Commissioner, James Lee; Engineer, John McBride.

Ben Avon—President, A. W. Renwick; Secretary, F. A. Schmucker; Treasurer, Charles H. Hays; depository, Pittsburg Trust Company; Solicitor, James McLaren; Street Commissioner, James B. Bedie; Engineer, H. F. Layton.

Blakely—President, Harry E. Mains; Secretary, William Matthews; Treasurer, H. N. Barrett; Street Commissioner, George Cool.

Braddock—President, G. E. F. Gray; Treasurer, Edgar I. Mills; Street and Water Commissioner, W. L. Sechlar; Chief of Police, James J. McCarthy.

Carnegie—President, W. A. Smith; Clerk, H. R. Bigham; Solicitor, James H. Duff; Engineer, O. R. Higley; Street Commissioner, P. J. Kearns; Chief of Police, Jacob Streitenberger.

Chambersburg—President, Thomas J. Brereton; Clerk, Charles H. Paterson.

Corapolis—President, D. K. Clever; Clerk, E. C. Harper; Chief of Police, McClelland Inskipt; Street Commissioner, William Ewing.

Crafton—President, Robert Davis. Dickson—President, F. F. Padden; Secretary, William Finnerty; Treasurer, George Ferris; Street Commissioner, Peter Bolchewek; Solicitor, Ralph W. Rymer.

Duryea—Chairman, William O'Boyle; Borough Attorney, Moses Salsburg; Borough Clerk, Robert Bowen; Chief of Police, Lawrence Cosgrove; Street Commissioner, F. K. Hill; Assistant Street Commissioner, Luke Nolan; Borough Treasurer, William Brown.

East Pittsburg—President, Daniel E. Hunihan; Treasurer, P. W. Morgan; Engineer, Harrop, Taylor & Hopkins; Street Commissioner, John Garrigan; Chief of Police, George Chambers.

Edgewood—President, W. G. Gordon; Solicitor, J. G. Meyer; Engineer, David C. Neal; Treasurer, J. Frank Miller.

Emsworth—President, Alexander Stewart; Secretary, John Z. Sevin; Treasurer, Real Estate & Trust Company, Northside; Engineer, McBride Surveying & Engineering Company; Solicitors, Herriott & Morgan; Street Commissioner, A. J. Koehler.

Homestead—President, William Williams; Secretary, A. W. Hill; Treasurer, J. G. Silveus; Solicitor, J. B. McAdoo; Street Commissioner, William Evans; Chief of Police, William Fugh.

Hughestown—Chairman, William Sheetz; Secretary, John E. Schmaltz.

Ingram—President, T. W. Armstrong; Secretary, D. H. Haller; Solicitor, J. M. Russell; Engineer, J. S. Murry.

Jermyn—Chairman, Thomas Maynes; Secretary, John A. Loughney; Treasurer, Thomas Hunter; Supervisor, George McLaughlin.

Mayfield—Chairman, Theodore Wachna; Secretary, Daniel Meehan; Treasurer, Patrick Tampney; Supervisor, Chadwick Lewis.

McKees Rocks—President, D. L. McKee; Treasurer, Thomas Tierney; Clerk, John P. Pastro; Solicitor, Edward F. Duffy; Chief of Police, Leonard Beane; Street Commissioner, Clem S. Dorr; depository, McKees Rocks Trust Company.

Millvale—President, William Fox; Chief of Police, John Walker.

North Braddock—President, William J. Vance; Treasurer, Andrew J. Spigelmir; Solicitor, Carl Baldrige; Chief of Police, Edward Bard.

Oakmont—President, Frank C. Jones; Solicitor, Samuel M. Meals; Clerk, William W. Kerr; Treasurer, William M. Bottomfield; Ordinance Officer, Alfred Evans; Street Commissioner, J. A. Gallagher; Engineers, Douglass & McKnight.

Old Forge—Chairman, John Naylor; Clerk, Thomas Corcoran; Borough Treasurer, John M. Holland; Solicitor, John H. Bonner; Chief of Police, P. F. Conway; Street Commissioner, James White; Assistant Street Commissioner, Harry Russell.

Olyphant—President, John Kilcullen; Secretary, Thomas O'Hara; Treasurer, Harry Blaner; Street Commissioner, David Lewis; Borough Attorney, F. M. Lynch.

Rankin—President, Charles B. Guttridge; Treasurer, George C. Watt; Solicitor, R. F. Graham; Engineer, U. G. Duvall; Superintendent of Public Works, James L. Clavie; Chief of Police, Walter Barnett.

Reserve Township—President, Edward Havekotte; Vice-President, Fred Rothenbach; Clerk, Thomas Hammill. Other Trustees are Charles Schad, Joseph Zoeller and Gottlob Moedinger.

Sewickley—President, Frank G. Paulson; Vice-President, A. H. Diehl; Secretary, Edgar A. Day; Solicitor, Charles A. Woods; Engineer, M. H. Baker; Street Commissioner, Hiram Lake; Treasurer, First National Bank of Sewickley.

Swissvale—President, E. A. Stroud; Secretary, W. J. Cupples; Solicitor, James Nugent; Engineer, E. M. Watt.

Tarentum—President, William F. Denny; Clerk, William Gibson; Solicitor, Nelson McVicker.

Taylor—President, John F. Tubbs; Clerk, John L. Evans; Treasurer, William H. Thomas; Street Commissioner, William Thomas; Assistant Street Commissioner, William T. Richards; Chief of Police, James Scrivens; Borough Solicitor, James E. Watkins.

Verona—President, James S. McMunn; Clerk, S. M. Gundy; Solicitor, Samuel M. Meale; Treasurer, William J. Molliston; Engineers, Fries & Sperling of Wilkinsburg; Street Commissioner, J. Sturnagle; Chief of Police, Gottlieb Gautschi.

West Homestead—President, Edward Hoey; Secretary, J. W. Evans; Treasurer, Hugh Nevin; Solicitor, William L. McConegley; Chief of Police, Michael McDermott.

West Pittston—President, John Koshler; Secretary, Albert H. Browning.

Wilkesburg—President, Jacob Weinmann; Secretary, Walter Elder.

Willmerding—President, J. C. Boyle; Clerk, Robert Shirling; Solicitor, V. L. Barbour; Chief of Police, Harry F. Davenport.

Winton—President, M. J. Loftus; Secretary, Leo McDermott; Treasurer, James Loftus; Road Commissioner, Patrick Munley.

MUNICIPAL APPLIANCES

Novel Method of Working Gravel Pit

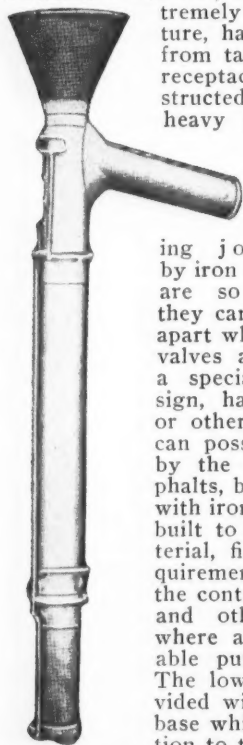
DEPOSITS of gravel and sand form an important factor in contract work in Southern Michigan and neighboring States. Good building material varying from fine sand to coarse gravel and even boulders occur in banks and pits, all grades being found in some deposits. Screening plants, sometimes with crushers for crushing the boulders, are often used in these pits. The illustration shows a deep pit in which sand is the principal material obtained. The pit is operated in Mishawaka, Ind., by Hiram W. Reed. This pit is about 30 feet deep and the teams and empty wagons are driven in at one side of the pit, the teams then unhitched and driven out, leaving the wagon in the pit. When loaded the wagons are pulled up the steep incline by a traction engine. Although the grade is so steep that it is difficult for the teams to get up the bank, the engine hauls the wagons loaded with $1\frac{1}{2}$ yards of sand or gravel out with ease. Mr. Reed uses Studebaker wagons.



PULLING STUDEBAKER WAGONS OUT OF PIT WITH TRACTION ENGINE

Oil and Asphalt Pump

THIS improved pump is especially designed for handling oils or asphalt in liquid form for road building purposes where the material, heated to an extremely high temperature, has to be pumped from tank cars to other receptacles. It is constructed in sections of heavy galvanized iron,



each section being riveted and made water or oil tight by being joined together by iron flanges, and they are so arranged that they can be easily taken apart when desired. The valves are all metal of a special patented design, having no hinges or other material which can possibly be affected by the hot oils or asphalts, being constructed with iron seats especially built to handle this material, filling all the requirements demanded by the contractors for State and other road work where a heavy, serviceable pump is required. The lower valve is provided with a heavy iron base which gives protection to the valve proper,

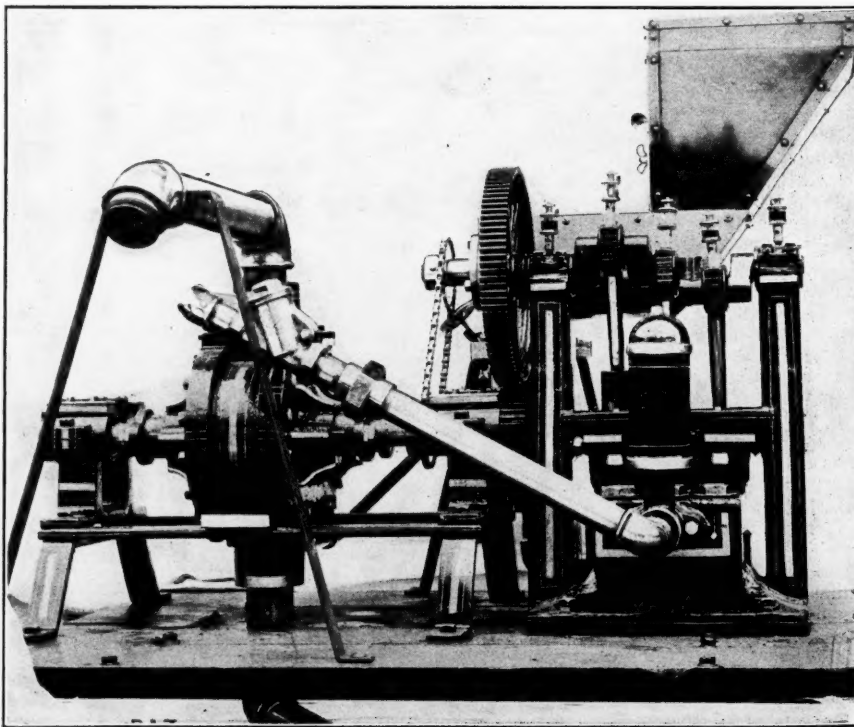
as well as preventing the upsetting or jamming of the lower section. One feature to which the manufacturers wish especially to call attention is the tripping device. This device is so arranged that the operator may release the material in the pump cylinder, permitting it to pass back through the lower valve, thus avoiding a great waste as well as an extra weight, which it is always necessary to lift with any ordinary pump, besides making a great saving in material as well as labor. The construction of the plunger valve is practically the same as that in the lower valve, it being securely fastened to the plunger rod by means of a heavy malleable iron crow foot or cage, and can be withdrawn from the pump at

any time for cleaning or inspection without interfering in any way with the valve parts. A desirable feature in this pump is the handles, which are provided on the sides, and which are securely riveted to the joint flanges of the two bottom sections for convenience in handling when hot or covered with oil or asphalt. The pump is manufactured by Wm. P. Tarrant, 12 Maple avenue, Saratoga Springs, N. Y.

New Chemical Fire Engine

THE Zanesville Chemical Engine Company has placed on the market a new chemical fire engine. By a simple mechanical process a chemical for which great efficiency is claimed is fed into any stream of water. This stream,

the manufacturers state, can be maintained indefinitely at a rate of from 100 to 500 gallons of chemical solution per minute, according to pressure, which may be supplied by any hydrant, steamer or automobile pumping apparatus. The accompanying cut shows the Peerless chemical engine ready for installation, consisting of two pumps and a mixing device ingeniously geared together and operated by the simple pressure of the water. The construction of the mechanism renders it positive and reliable in the mode of operation, maintaining the relative proportions of chemical to the volume of water regardless of the pressure or speed of the apparatus. The mechanical parts are especially designed for strength, accuracy, durability, con-



DEVICE FOR CHARGING STREAM OF WATER WITH FIRE-EXTINGUISHING CHEMICALS

structed of the best quality of non-corrosive metals with full roller bearings, reducing friction to a minimum, giving the highest efficiency and service and guaranteed against any defect in material or workmanship. The chemical used is a non-corrosive and harmless neutral solution, which is non-injurious to both flesh or fabric. When the solution reaches the fire the chemical is converted into a gas, which prevents combustion.

The engine weighs about 400 pounds and occupies a space of less than 40 inches square and may be installed on any hose wagon now in service. The mode of operation is very simple, being attended by one man, who keeps the hopper full of chemicals. The mechanism is controlled by the fireman at the nozzle. The apparatus starts and stops without assistance by the opening and closing of the nozzle.

The Peerless chemical engine has been subjected to daily tests for months, and it has proven itself to be positive and reliable. An endurance test of four hours was made without a stop, discharging more than 43,000 gallons of chemical solution from an ordinary hydrant at the rate of 180 gallons per minute.

For new apparatus the company has designed a special type of combination wagon, including an apartment for chemicals and hose, the engine being installed under the seat, a chemical bin of 1,000 pounds capacity in the front of the body, with the rear reserved for hose. The usual equipment of ladders, lanterns, hand chemicals, tools, etc., may be added. The chemical engine will be equipped with double inlet and discharge pipes, that attachments may be made from either side of the wagon.

TRADE NOTES

Cast Iron Pipe.—Chicago: Inquiries are good, though no large lettings are in sight. Quotations: 4-inch, \$28.50; 6 to 12-inch, \$27.50; 16-inch and up, \$26.50. Birmingham: Present movement to the North and West is short of expectations, but the demand from Southern and Southeastern points is very satisfactory. Quotations: 4 to 6-inch, \$25; 8 to 12-inch, \$24; over 12-inch, average \$23. San Francisco: Orders for coast delivery show a continued increase. New York: Private water and gas companies in this vicinity have recently bought considerable quantities. Pipe foundries selling in this locality are well supplied with work. Quotations: 6-inch, \$25.50 to \$26.

Lead.—Market dull and unchanged. Quotations: New York, 4.40c. to 4.50c.; St. Louis, 4.20c. to 4.30c.

Special Valves.—The Golden-Anderson Valve Specialty Company, Fulton Building, Pittsburg, Pa., manufacture automatic valves for water services. Their automatic float valves and the controlling altitude valves for maintenance of uniform water level in water tanks, standpipes and reservoirs are lined with bronze down to and including the seats. The piston or valve is all bronze and fitted with rubber cups and disc, so there are no metal parts that come in contact. The piston being in a vertical position and always cushioned on opening and closing by water and air, makes the valve, it is claimed, virtually indestructible, insures positive operation on varying pressures and durability and economy of maintenance. The altitude valves are made to close by water or electricity, as desired.

Wood Pipe Company Changes.—The business and manufacturing plants of the National Wood Pipe Company and Pacific Tank Company have been consolidated. In future all business of the National Wood Pipe Company and Pacific Tank Company will be conducted under the name and style of Pacific Tank and Pipe Company. The officers and employees of both companies have been retained and all contracts and other obligations of every nature are assumed by the Pacific Tank and Pipe Company. The consolidation has been brought about by the increasing demands for the products of both companies, with a view of concentrating their efforts and specializing on water, oil, wine and mining tanks, machine-banded and continuous stave water pipe, and irrigation supplies. They have just completed the largest pipe and tank factory in the world at Portland, Ore., and are enlarging their factories at San Francisco and Los Angeles.

Smoke Consumer.—The Magden Construction Company, Des Moines, Ia., has recently installed a Dewhirst smoke-consuming furnace in the plant of the La Salle Paper Mills Company, South Bend. It is said to be operating successfully in accordance with the guarantee of the builders that it will save 25 per cent of the fuel in addition to burning the smoke and gases. Simon Dewhirst, of Oskaloosa, Ia., the inventor, explains the operation of the furnace as follows: "The fireman puts the coal on a coking table, which is inside of the furnace. This coal is generating gas, while the coke is burning on the grate. There's where we gain our efficiency of the heat by burning up the gases as well as the smoke, thereby assuring proper combustion. By using this furnace the heat is so intense the percentage of ashes and clinkers made is naturally very little, because everything is burned up. That is where the great saving of fuel comes."

Trolley Garbage Car.—The Chicago Railways have ordered from the Arthur Koppel Company a garbage and utility car of new design. The car is to be used on the North and West Side lines in Chicago with a view to determining the practicability of removing city garbage over the surface railways. The car is of all-steel construction, 34 feet long, and subdivided into three equal sections, with a total carrying capacity of 20 yards. The sections are so shaped and arranged that one man with a pole can dump a heavily loaded section by a mechanical movement. The car body will be mounted on two Pullman No. 150 trucks, which are standard for the Chicago Railways. No motors will be installed. Construction materials will be handled in the car during the day, and at night the garbage will be handled for the city. The subdivision of the car into three sections greatly increases its utility for maintenance work because a different class of material can be handled in each section. The sections are watertight and wet concrete or garbage will not leak on the pavement.

Gasoline Furnace.—The Newark Gasoline Furnace, for melting lead and other soft metals, is said to be free from the two great objections to coke and wood furnaces, the blast has a tendency to keep the lead in the pot moving continually, thus preventing it from burning on the side of the pot and throwing it down. The furnace is manufactured by Wm. E. Virlin, 59 Pennsylvania avenue, Newark, N. J.

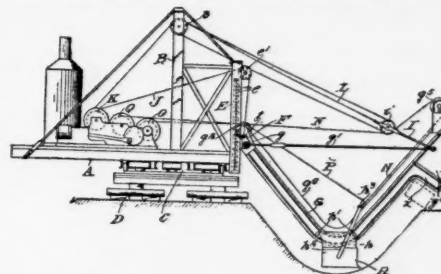
PATENT CLAIMS

950,541. **ASPHALT EXPANSION-JOINT.** Christopher S. McGinn, St. Louis, Mo. Serial No. 497,896.

An elastic material for paving, comprising a mixture of 84 per cent. sand, 4 per cent. lime, 6 per cent. asphalt, and 6 per cent. petroleum oil.

950,631. **DRAINAGE-EXCAVATOR.** Mor-ton G. Bunnell, Chicago, Ill., assignor to Frederick C. Austin, Chicago, Ill. Serial No. 467,326.

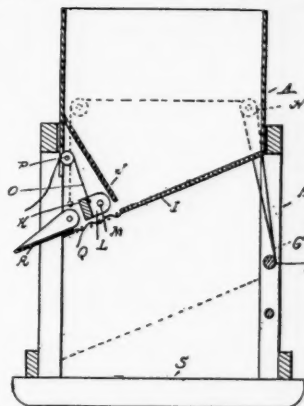
In a drainage excavator, a pivoted runway, a bucket traveling back and forth upon and made wider than the runway, so



as to cut a groove in the ground in which the runway may descend, said runway being adapted by its shape to determine the cross sectional contour of the ditch, and means for causing the bucket to fill by movement thereof away from the pivot or axis about which the runway is arranged to swing up and down.

951,268. **LOADING APPARATUS.** James C. Clark, Sarnia, Ontario, Canada. Serial No. 505,874.

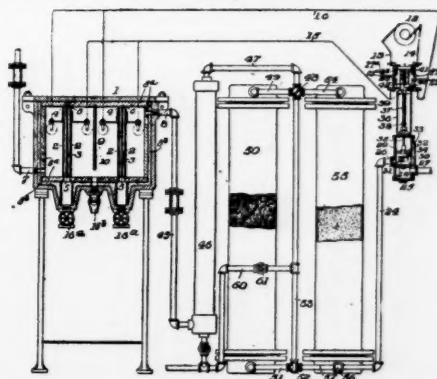
The combination with a portable frame, of a receptacle vertically adjustably mounted upon said frame, and having an inclined bottom, a deflector in said receptacle spaced



from said inclined bottom to form a restricted discharge, a screen over which the material is discharged, and a gate for controlling the discharge.

951,311. **METHOD OF PURIFYING WATER ELECTROLYTICALLY.** Harry B. Hartman, Pittsburg, Pa., assignor to McDowell Manufacturing Co., Pittsburg, Pa., a corporation of Pennsylvania. Serial No. 497,729.

The method of purifying liquids consisting in causing the liquid to flow between



metallic electrodes and there subjecting the same to the action of an electric current, and making and breaking the electric circuit when starting and stopping the flow of the liquid and in a manner to maintain the current flow appreciably longer than the liquid flow.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage
Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Street Railways—Sanitation,
Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we can not guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Pennsylvania...	Lansdowne...	April 1	Laying Telford and Tarvia, cement walks, curb, gutter, treating streets with oil, excav., etc., during year.	John W. Davis, Secy. Boro. Council.
Ohio...	East Liverpool...	April 1	Street paving to cost about \$55,000.	Alex. McBane, Dir. Bd. Control.
Iowa...	Iowa City...	April 1	Vit. block paving, 9,000 sq. yds.; sandstone curb, 3,900 ft.	O. J. Slater, City Clerk.
Pennsylvania...	Gallitzin...	April 1, 8 p.m.	Furn. 450,000 paving block; brick paving, 9,000 sq. yds.	Harry F. Conrad, Boro. Sec'y.
Ohio...	Cincinnati...	April 1, noon.	Improving 4 roads. Spec. Nos. 968, 1,000, 992 and 982.	Fred Dreihls, Clk. Co. Comrs.
Utah...	Salt Lake City...	April 1	Paving 2 streets in Paving Extension No. 42.	H. G. McMillan, Chm. Bd. Pub. Wks.
Indiana...	Fort Wayne...	April 2, 10 a.m.	Grading, graveling or macadamizing County highways.	John B. Wyss, Chm. Bd. Co. Comrs.
Illinois...	Edwardsville...	April 2, 2 p.m.	Vit. brick paving on concrete, granite concrete curb, etc.	C. A. Sheppard, Engr. Bd. Loc. Imp.
Indiana...	Decatur...	April 4	Constructing 4 macadam roads.	H. S. Michaud, County Auditor.
Illinois...	Belleville...	April 4, 3 p.m.	Vit. block paving, 35,000 sq. yds.; excav., curbing, sewerage.	Fred J. Kern, Mayor.
North Dakota...	Fargo...	April 4, 5 p.m.	Constructing tile, cement, concrete and tar concrete walks.	N. C. Morgan, City Auditor.
Massachusetts...	Boston...	April 4, 2:30 p.m.	Surfacing and grading main portion of Chas. river Dam: 5,300 cu. yds. sand excav., 5,500 lin. ft. clay pipes, furn. by Comm.; 13 service boxes; 46 catch basins; 2,600 cu. yds. gravel; 200 sq. yds. vit. brick gutters; 14,000 cu. yds. loam.	
Georgia...	Atlanta...	April 4, 3 p.m.	Crested wooden block paving, 3,500 sq. yds. N. Boulevard.	Charles River Basin Comm.
Michigan...	Fremont...	April 4	Grading and paving 8,129 lin. ft. Main and Stewart sts.	R. M. Clayton, City Engineer.
New York...	Albany...	April 4, 1 p.m.	Improving 20 highways; total length, 68.21 mile.	Rumsey & Works, Gr. Rapids, Eng's.
North Carolina...	Raleigh...	April 4	Grading and macadamizing Willardville road.	S. Percy Hooker, Chm. Hwy. Comrs.
North Dakota...	Maryville...	April 4	Constructing sidewalks of all kinds during year.	F. W. Allen, Chm. Co. Comrs.
Indiana...	Greenfield...	April 4, 10 a.m.	Furnishing 22 steel road drags.	W. E. Inglehart, City Auditor.
Louisiana...	Harrisonburg...	April 4, noon.	Working 25 miles of road; parish furnish road machines, etc.	C. H. Troy, County Auditor.
Delaware...	Ft. Du Pont...	April 4, 11 a.m.	Macadam road, 1,934 sq. yds.; granolithic walk, 3,777 sq. ft.	H. W. Bethard, Sec'y Police Jury.
Massachusetts...	Ft. Strong...	April 4, 10 a.m.	Constructing roads, walks and drains at Fort.	Constructing O. M.
Indiana...	Delphi...	April 4, noon.	Bldg. 3 gravel roads in Jackson township.	A. N. Miller, 263 Summer St., Boston.
Indiana...	Rushville...	April 4, 2 p.m.	Constructing macadam road in Rockland township.	M. G. Haun, County Auditor.
Indiana...	Muncie...	April 4, 10 a.m.	Paving Yorktown road, part brick and part macadam.	Jesse M. Stone, County Auditor.
Indiana...	Tipton...	April 4, 10 a.m.	Bldg. 2 stone roads, in Wildcat and Cicero twp.	Joseph E. Davis, County Auditor.
Indiana...	Williamsport...	April 4, 1 p.m.	Constructing gravel road, 15,817 ft. long, Jordan twp.	J. F. Burrows, County Auditor.
Indiana...	Rockville...	April 5, 1:30 p.m.	Bldg. Perry Harmless gravel road, inc. bridges, Jackson twp.	R. L. Winks, County Auditor.
Indiana...	Vincennes...	April 5, 2 p.m.	Bldg. Abe Hart et al system of gravel roads, 10,520 ft. long.	H. A. Henderson, County Auditor.
Minnesota...	Eveleth...	April 5, 8 p.m.	Labor and material for paving 9,700 sq. yds.	J. T. Scott, County Auditor.
New York...	Amsterdam...	April 5, 8 p.m.	Fire clay brick paving, 8,100 sq. yds., E. Main and Spring sts.	D. P. McIntyre, City Clerk.
New Jersey...	Trenton...	April 5, 8 p.m.	Repairing asphalt pavements on which guarantees have expired.	F. E. Crane, City Engineer.
Indiana...	Petersburg...	April 5	Bldg. 2 roads in Logan twp., 3,909 and 215 ft. long.	Harry B. Bolton, City Clerk.
Ohio...	Cleveland Hts...	April 5, noon.	Treating 13 sts. with oil for laying dust and preserving surface.	F. A. Bilderback, County Auditor.
Kentucky...	Winchester...	April 5, noon.	Working and repairing County roads and turnpikes.	H. H. Canfield, Village Clerk.
Indiana...	Covington...	April 5, 1:30 p.m.	Constructing gravel road in Mill creek twp.	W. S. Haggard, Supervisor of Roads.
Indiana...	Bloomington...	April 5, 4 p.m.	Grade, drain, macadam, conc. curb and gutter, E. 2d st.	Dm. B. Gray, County Auditor.
Tennessee...	Chattanooga...	April 5	Constructing sidewalks around City Hall.	William B. Smith, City Clerk.
Arkansas...	Jonesboro...	April 5	Vit. block on gravel, 23,000 sq. ft.; conc. walks, 105,000 sq. ft.; curb, 10,000 ft.	Robert Heccke, City Engineer.
Kansas...	Ft. Scott...	April 5, 5 p.m.	Brick paving Hill st. macadam; McDonald st., conc. curb and gutter.	B. H. Erger, Chm. Imp. Dist. 4.
Indiana...	South Bend...	April 5	Paving Prairie ave. with asphalt, brick or other material.	J. O. Brown, City Clerk.
Pennsylvania...	Scranton...	April 5, 11 a.m.	Asphalt paving on concrete, 4 streets.	Otto C. Eastian, Chm. Bd. Pub. Wks.
Indiana...	Shelbyville...	April 6	Improving highways in 3 townships.	C. V. Terwilliger, Lir. D. P. W.
Ohio...	Cleveland...	April 6, 11 a.m.	Grad., drain and improv. No. Woodland road No. 2, Orange twp.	G. R. Huntington, County Auditor.
Arizona...	Phoenix...	April 6, 2 p.m.	Bldg. Territorial highway between Roosevelt and Globe.	Frank R. Lander, County Surveyor.
New York...	Albany...	April 6, 1 p.m.	Improving 21 State highways: total length, 71.25 miles.	J. J. Riggs, Sec'y Bd. of Control.
Washington...	Aberdeen...	April 6	Paving, curb, gutter, walks, Market and K sts.; cost, \$45,000.	S. Percy Hooker, Chm. Hwy. Comrs.
Montana...	Bozeman...	April 7, 7 p.m.	Bldg. cement sidewalks, curbs, gutters and crosswalks.	P. F. Clark, City Clerk.
Maryland...	Baltimore...	April 7, noon.	Bldg. 14 sections State highway, aggregating 52 miles.	A. H. Brandenburg, City Clerk.
New Jersey...	Woodbridge...	April 7, 8:30 p.m.	Furn. 30 car loads 3-4-in., 1-in. and 1 1/2-in. crushed trap rock.	J. M. Tucker, Chm. St. Roads, Com.
Indiana...	Williamsport...	April 8, 1 p.m.	Bldg. W. H. Allison et al gravel road in Steuben twp.	J. Edw. Harned, Township Clerk.
Indiana...	Muncie...	April 8, 10 a.m.	Constructing McCreery gravel road in Harrison twp.	Robt. L. Winks, County Auditor.
New York...	Albany...	April 8, 1 p.m.	Improving 19 State highways; total length 62.98 miles.	Jos. E. Davis, County Auditor.
Ohio...	Cincinnati...	April 8, noon.	Repair south fork Taylor Creek road, Green and Miami twps.	S. Percy Hooker, Chm. Hwy. Comrs.
Wisconsin...	Two Rivers...	April 8, 7:30 p.m.	Grading, curbing, macadamizing 3 blocks of Washington st.	Fred Dreihls, Clk. Co. Comrs.
Indiana...	Fowler...	April 9, 1 p.m.	Constructing 4 gravel or stone roads.	Board of Public Works.
Indiana...	Bedford...	April 11, 1 p.m.	Constructing 6,902 ft. gravel road in Shawswick twp.	Lemuel Shipman, County Auditor.
South Dakota...	Aberdeen...	April 11, 8 p.m.	Paving, etc., 4 sts., crec. block, brick and concrete.	W. G. Owens, County Auditor.
West Virginia...	Huntington...	April 11, 2 p.m.	Grading, draining, paving, curbing alley.	F. W. Raymond, City Auditor.
Saskatchewan...	Moose Jaw...	April 11, 8:30 p.m.	Paving 33,300 sq. yds.; combined curb and gutter, 13,500 lin. ft.; concrete sidewalk, 116,500 sq. ft. Angus Smith, City Engr.	John Coon, Comr. Sts. and Sewers.
Minnesota...	St. Paul...	April 12, 10 a.m.	Grading and macadamizing Centerville road; cost, \$20,000; Lexington ave., \$11,000; Bald Eagle Lake ave., \$5,000.	W. F. Heal, City Clerk.
Kentucky...	Newcastle...	April 12	Constructing 41 miles of turnpike roads.	E. G. Krahmer, County Auditor.
Indiana...	Connersville...	April 14	Constructing 90,000 sq. ft. cement sidewalk, 5 ft. wide.	S. Bruce, County Judge.
Wisconsin...	Platteville...	April 14, 7:30 p.m.	Brick paving, 6,560 sq. yds., curb and gutter, 2 streets.	Carl L. Hanson, Town Engineer.
New York...	Little Falls...	April 15	Paving North Ann street.	P. D. Hendershott, City Clerk.
Indiana...	Kokomo...	April 15, 2 p.m.	Constructing Dixon free gravel or stone road, Center twp.	Board of Public Works.
Ohio...	Bellevue...	April 15, noon.	Grading, curbing, macadamizing and paving Elm st.	A. B. Esterling, County Auditor.
Oklahoma...	Bartlesville...	April 15	Bitulithic paving, 16,000 sq. yds.; concrete curb and gutter, etc.	Clair A. Inskeep, City Engineer.
Washington...	Spokane...	April 18	Paving and curbing Browns Addition, Imp. Dist. 675; many avenues.	L. C. Pollock, City Clerk.
Florida...	Lake City...	April 25	Constructing 5 miles of cement sidewalks.	Geo. W. Armstrong, Sec'y Bd. P. W.
Florida...	Jacksonville...	May 2, 3 p.m.	Laying sidewalks on 9 or more sts.; Philip Prioleau, City Engr.	J. C. Sheffield, Chm. Bd. Bond Trus.
SEWERAGE				
Tennessee...	Cleveland...	April 1	Bldg. \$35,000 sewer system and disposal plant for city.	Sol.-Norcross Co., Atlanta, Ga., Engr.
New York...	Syracuse...	April 1	Harbor Brook improvement, 3 miles long, including constructing of intercepting sewer.	Intercepting Sewer Board.
Kentucky...	Louisville...	April 1, noon.	Bldg. Third st. sewer, Cont. 64: 1,435 ft. 51-in. rein. concrete sewer; 2,645 ft. 33 and 24-in. unrein. conc., 670 ft. 18-in. vit. pipe, inc. 4,750 ft. earth excav., 6 to 22 ft. deep; 575 cu. yds. rein. and 515 cu. yds. unrein. concrete; 43,000 lbs. steel reinforcement; also Cont. 63: 2,357 ft. 8 to 18-in. comb. sewer and drain, 8.5 to 18 ft. deep, 50 cu. yds. concrete, 4,624 ft. 8 to 18-in. vit. pipe.	J. B. F. Breed, Ch. Eng. Sewer Comm.
North Dakota...	Ashley...	April 4, 2 p.m.	Furnishing 12 metal culverts of various sizes.	John F. George, County Auditor.
Ontario...	Islington...	April 4, noon.	Bldg. complete pipe sewer system at New Toronto section.	J. A. L. MacPherson, Clk. Elob. Twp.
New York...	Comstock...	April 5, noon.	Bldg. sewage disposal system for Great Meadow Prison.	C. V. Collins, Supt. of Prisons, Albany
Kansas...	Peabody...	April 5, 7:30 p.m.	Material and labor for 4 miles 8 to 12-in. sanitary sewer, manholes, flush tanks, etc.; also for reinforced concrete septic tank.	J. W. Mavity, Lyndon, Engineer.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
SEWERAGE—Continued				
New Jersey	Trenton	April 5, 8 p.m.	Constructing 5 sewers, Hewitt st. and Stuyvesant ave.	Abram Swan, City Engineer.
New Jersey	Newark	April 5, 3:30 p.m.	Bldg. storm water drainage system on Park ave., 4 cities of Essex Co.; 11,200 ft. 8 to 24-in. vit. pipe, 1,700 ft. 24, 27, 30-in. rein. conc. pipe; 90 rein. conc. catch basins; 6 ft. deep and 40 7 ft. deep; 150 cu. yds. brick masonry; 25,000 lbs. c. i.; 1,000 lbs. wrought iron.	A. Church, Sec'y Essex Co. Pk. Com. Board of Public Works.
South Carolina	Charleston	April 5	Furn. iron castings, pipe, cement, etc., during year.	John S. Bickwell, City Clerk.
Missouri	Columbia	April 5	Constructing 16,000 ft. 8 to 12-in. sewers of tile and earthenware, and 55 manholes; cost, \$19,000.	Alfred E. Steers, Boro. President.
New York	Brooklyn	April 6, 11 a.m.	Bldg. sewers and sewer basins in several streets.	Geo. B. Campbell, Jr., Boro. Engr.
Pennsylvania	Arnold	April 6, 7 p.m.	Bldg. 2,000 ft. of 48-in. steel rein. concrete sewer in 14th st.	C. M. Robertson, Clk. Pub. Service.
Ohio	Hamilton	April 6, noon	Bldg. storm sewer in South B and Military sts.	
Kentucky	Louisville	April 8, noon	Bldg. Brook st. sewer, Contract No. 62; 5,198 ft. 7.5 and 10-ft. rein. concrete sewer, inc. 5,000 cu. yds. concrete, 495,000 lbs. steel; Harrison P. Eddy, Boston, Mass., Cons. Engr.	P. L. Atherton, Chm. Sewer Comrs.
Illinois	Canton	April 14, 7 p.m.	Material and labor for bldg. system of storm water sewers, changes and additions to sanitary sewers and sewage purification tanks; \$30,000 bond. A. T. Maltby, C.E., Chicago.	Joseph Waugh, City Clerk.
Virginia	Big Stone Gap	April 15	Paving and sewer work to cost \$22,000.	City Recorder.
Ontario	Toronto	April 19, noon	Bldg. high level interceptor; 1,216 ft. 7.10x10 ft. diam. flattened shape; 2,246 ft. 9.6 ft. circular; 2,072 ft. 9.3 ft. and 1,336 ft. 9 ft.; 2,293 ft. 9.9 ft.; siphon crossing under River.	C. H. Rust, City Engineer.
Saskatchewan	North Battleford	April 19, 8 p.m.	Laying water and sewer mains, sewage disposal works, etc.	J. A. Foley, Mayor.
Oklahoma	Enid	April 21, noon	Bldg. lateral sewer in 5 blocks, in Garland addition.	E. R. Lee, City Clerk.
Pennsylvania	Pottsville	April 26, noon	Preliminary plans for Insane Asylum and sewage plant.	Chas. T. Straughn, County Cont'l'r.
Saskatchewan	Weyburn	April 27, 8 p.m.	Sewer pipe, disposal works, laying pipe; water works, etc.	Willis Chipman, C.E., Toronto, Ont.
North Dakota	Fargo	April 28, 5 p.m.	Bldg. 12-in. sewer in Thirteenth st., North.	N. C. Morgan, City Auditor.
Illinois	Danville	May 1	Constructing sewer in 2 additions; cost, \$70,000.	Walter E. Winn, City Engineer.
Kansas	Manhattan	May 3, 3 p.m.	Bldg. complete sanitary sewer system; cost, \$80,000, inc. pumping station, 1,624 ft. 24-in., 5,360 ft. 18-in., 5,200 ft. 15-in., 1,700 ft. 12-in., 67,000 ft. 8-in. pipe; 159 manholes; 23 flush tanks.	
New Jersey	Perth Amboy	May 21, 8:30 p.m.	Constructing 12-ft. sewer in Baker Place.	Con M. Buck, City Engineer.
				Geo. M. Adair, Street Comr.
WATER SUPPLY				
Michigan	Mt. Pleasant	April 1	Furn. 50 tons 6 and 12-in. c. i. pipe and fittings.	H. H. Hunter, City Clerk.
Ohio	Columbus	April 4	Furn. 200 tons c. i. pipe and 25 tons specials.	H. S. Holton, Dir. Pub. Service.
Michigan	Detroit	April 4	Laying 8,560 ft. 6-in., 300 ft. 8-in. c. i. pipe; 21 hydrants, 8 ft. cover; 11 gate valves; 4,000 lbs. specials.	Chas. G. Sturtevant, City Clerk.
Texas	Sherman	April 4	Extension and improvement of water works; cost, \$12,000.	P. C. Thurmond, City Engineer.
Manitoba	Winnipeg	April 4, 11 a.m.	Furnishing c. i. water pipe, valves and hydrants for city.	M. Peterson, Sec'y B. d. Control.
Wisconsin	Madison	April 5	Furn. and install. 200 tons 4 to 10-in. c. i. water pipe, 70 hydrants, etc., for light, heat and power plant in Capitol Park.	Lew F. Porter, Sec'y Capitol Com'n.
Mississippi	Meridian	April 5	Bldg. 8,500 ft. 24-in. reinforced concrete conduit.	Wm. F. Wilcox, Gen. Mgr., Wtr. C'm.
Mississippi	Benoit	April 5	Bldg. water works, including well; certified check, \$1,000.	M. M. Thompson, Mayor.
Nebraska	Madison	April 6	Furn. f. o. b. Madison: motor-driven pump, 150 gal., 20-25 r. p. m. at 100 lbs., 250 volt, d.c., 15 h.p. motor, 72 in. by 16 ft., horizontal tubular steam boiler.	F. J. Dankers, City Clerk.
Georgia	Quitman	April 6, 8 p.m.	Furn. and erect 150,000-gal. steel tank on tower.	J. D. Wilson, Mayor.
Massachusetts	Boston	April 6, 2:30 p.m.	Bldg. 6 ft. 4 in. pres. tunnel, 1,900 ft. long, concrete lining; laying 500 ft. 80-in. steel pipe, mortar lined, concrete cover; laying 930 ft. 60-in. c. i. pipe line in Newton; work includes 5,530 cu. yds. earth and 1,700 cu. yds. rock excav.; refilling 8,900 cu. yds.; curbing, 7,500 cu. yds. stone; 2,300 cu. yds. conc. masonry in tunnel, 500 in open trench, etc.	Charles River Basin Comm.
New Jersey	Ft. Hancock	April 6, noon	Bldg. pumping plant and installing machinery at Fort.	C. T. Goodier, Constr. Q. M.
Michigan	Detroit	April 7	Erecting bldgs. for Fairview Pumping Plant; separate bids.	J. J. Haarer, Comr. Pub. Works.
Texas	Corpus Christi	April 8, noon	Furn. 8 miles 4, 6 and 8-in. c. i. pipe, specials, 150 hydrants, gate valves and boxes, lead, etc., and for laying same.	Clark Pease, Mayor.
Minnesota	St. Paul	April 11, noon	Dredging west arm of Vadnais Lake, 7 miles from city; 1,500,000 cu. yds., mostly vegetation and peat.	John Caulfield, Sec'y Water Bd.
Colorado	Fort Collins	April 14	Bldg. 5,000,000-gal. reservoir on Bingham Hill, with concrete sides and bottom and concrete or frame roof, etc.	Robt. S. Fedder, City Clerk.
Alabama	Opelika	April 15	Furnishing water to city at expiration of existing contract.	L. F. Dickson, Mayor.
South Carolina	Florence	April 15	Bldg. 7 miles of water main; deep well pump (air lift system), c. i. pipe, hydrants and valves; cost, \$30,000.	J. N. Johnston, Engineer.
Ontario	Weston	April 18, 8 p.m.	Bldg. pump house; mechanical water filters; electrically operated machinery.	M. D. Lucas, City Clerk.
Saskatchewan	No. Battleford	April 19, 8 p.m.	Pipe laying, water works and sewers; furn. water pipes, hydrants, valves, etc.; concrete reservoir; sewage disposal works; Willis Chipman, C.E., Toronto, Ont.	T. H. Taylor, Town Clerk.
Pennsylvania	Marietta	April 20	Laying submarine line 2,200 ft. 10 in. universal c. i. pipe.	J. H. Foley, Mayor.
Saskatchewan	Weyburn	April 27, 8 p.m.	Pump house, machinery, wooden stave pipe, mech. water filters, power house, lay pipes, etc.	Marietta Water Company.
Connecticut	Waterbury	May 20	Bldg. \$300,000 concrete dam in town of Morris.	George Ross, Sec'y-Treas.
				R. H. Cairns, City Engineer.
BRIDGES				
New Jersey	Rutherford	April 1, 1 p.m.	Bldg. new bridge over Erie R. R. tracks at Montross ave.	Bd. Freeholders, Hackensack.
Ontario	Brantford	April 2, 10 a.m.	Concrete bridges, arches and abutments.	J. A. Smith, Township Clerk.
Colorado	Trinidad	April 4, 2 p.m.	Bldg. 40-ft. steel span or rein. conc. bridge, near Jansen.	G. F. Harlan, Chm. Co. Comrs.
Iowa	Clinton	April 4, noon	Bldg. and repairing all bridges as ordered during year.	Frank W. Leedham, County Auditor.
Florida	Perry	April 4	Bldg. 45-ft. steel trestle bridge.	John C. Calhoun, Clk. Co. Comrs.
Illinois	Danville	April 4	Bldg. bridge Newell twp.; rein. conc., 160x16 ft., or steel, 140x16 ft.; conc. sub. and floor.	Board of County Commissioners.
West Virginia	Harrisville	April 4	Bldg. steel bridge over No. fork of Hughes river, Clay Dist.	W. R. Meserine, County Clerk.
Ontario	Brantford	April 4, 10 a.m.	Bldg. 80-ft. span steel bridge over Fairchild's Creek.	J. A. Smith, Township Clerk.
Ohio	Bryan	April 4	Bldg. several reinforced-concrete sub and superstructures.	R. H. Weaver, County Auditor.
Indiana	Decatur	April 4, 10 p.m.	Bldg. number of bridges and abutments for County.	H. S. Michaud, County Auditor.
Alabama	Talladega	April 4	Bldg. 2 steel bridges, one over creek, other over So. R. R.	J. E. Camp, Judge of Probate.
Louisiana	Harrisonburg	April 4, noon	Repair of Bayou Louis bridge.	H. W. Bethard, Sec'y Police Jury.
Illinois	Streator	April 4, 5 p.m.	Bldg. \$30,000 bridge over river; grade and pave. approaches.	John B. Patterson, County Clerk.
Indiana	La Porte	April 4	Bldg. bridge over Kankakee river at English Lake.	H. C. Miller, County Auditor.
California	San Jose	April 5, 11 a.m.	Bldg. \$15,000 reinforced concrete bridge over Coyote creek.	J. G. McMillan, County Surveyor.
Washington	Kalama	April 5, 10 a.m.	Bldg. 300-ft. steel hwy. bridge at Castlerock, one span with wood flooring, 16-ft. roadway; concrete sub., 2 piers, 70 ft. high, 55 ft. being above water.	
Pennsylvania	Waynesburg	April 5, 1 p.m.	Constructing several bridges for County.	G. S. Roberts, County Engineer.
Indiana	Goshen	April 5, 9:30 a.m.	Constructing and repairing bridges in various townships.	James McCracken, County Clerk.
Indiana	Vincennes	April 5, 2 p.m.	Repairs to various County bridges.	D. O. Batchelor, County Auditor.
Indiana	Noblesville	April 5	Bldg. 7 concrete bridges, spans 6 to 60 ft.	John T. Scott, County Auditor.
North Dakota	La Moure	April 5	Furn. corrugated galv. metal culverts during 1910.	Geo. Griffin, Co. Auditor.
Colorado	Denver	April 9, noon	Bldg. 2 steel bridges in Eagle and Ouray Counties.	C. J. Allister, County Clerk.
Louisiana	Shreveport	April 12, 5 p.m.	Bldg. \$300,000 steel traffic bridge over Red River.	C. W. Comstock, State Engineer.
South Carolina	Newberry	April 13	Bldg. \$4,000 bridge over Saluda river.	C. G. Rives, Comptroller.
Pennsylvania	Reading	April 15, 10 a.m.	Repairing Hartz Mill bridge, near Morgantown.	Newberry County Supervisors.
Louisiana	Gretna	June 1	Constructing steel bridge over canal in Harvey Parish.	A. L. Rhoads, County Controller.
Utah	White Rocks	June 1	Bldg. substructure of \$18,000 steel bridge at Vintah and Ouray Indian agency. M. J. Patterson Contr. Co., Denver, Colo., has contract for superstructure.	E. M. Hubert, Sec'y Police Jury.
				Com'r Indian Affairs, Wash., D. C.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
LIGHTING AND POWER				
Massachusetts	Boston	April 1	Lighting 12,000 lamps with incan. mantle burners, streets, parks and alleys for 5 or 10 years from July 31, 1910.	Guy C. Emerson, Supt. of Streets.
Ontario	Fort William	April 1	Gas franchise, inc. bldg. of plant, mains, etc., and operation.	John Wilson, Asst. City Engr.
California	Hayward	April 6	Purchase of electric light and power franchise.	Board of City Trustees.
New York	Albany	April 7, noon	Bldg. 4 hydroelectric power plants on canals; also for lighting 8 locks on 3 canals. Engineer's estimate, \$180,360.	F. C. Stevens, Supt. Pub. Wks.
New York	Otisville	April 12, 10 a.m.	Bldg. elec. light and power plant, inc. engine, dynamo, generator, transformer, wiring, etc., for grounds of Tuberculosis Sanatorium.	Board of Health, N. Y. City.
Oklahoma	Ft. Sill	April 13, 10 a.m.	Electric light and power plant and lighting at Fort.	Capt David L. Stone, Q. M.
Maine	Rumford	April 14	Ledge excav. and masonry cradles for 1,000 ft. of 14-ft. penstock, relief pipe concrete spillway; mach. and bldg. excav. and conc. foundations; brick and concrete station bldg., etc.; 4,000 cu. yds. ledge excav.; 500 cu. yds. rubble masonry; 1,200 cu. yds. concrete; 112 cu. yds. brick work.	Rumford Falls Power Co.
Alberta	Camrose	April 15	For installation of elec. light and power plant on 10-yr. franchise.	O. B. Olson, City Sec'y-Treas.
Alabama	Opelika	April 15	Furn. electric light to city at end of present contract.	L. F. Dickson, Mayor.
MISCELLANEOUS				
Virginia	Norfolk	April 1	Plans, etc., for market and auditorium for 7,000.	Harvey M. Dickson, Chm. Indus. C'm.
Wyoming	Basin	April 2	Bldg. new jail and sheriff's residence on old site.	Board of County Comrs.
Georgia	Griffin	April 4	Erecting City Hall; Harralson Bleckley, Arch., Atlanta.	Douglas Boyd, Chm. Pub. Bldg. Com.
North Dakota	Ashley	April 4	Furnishing 12 metal culverts of various sizes.	John F. George, County Auditor.
Delaware	Wilmington	April 4	Remodeling comfort house at Cool Spring Park.	Chief Engr. Kienle, Water Board.
Florida	Inverness	April 4, noon	Bldg. County jail. W. B. Talley, Jacksonville, Arch.	Citrus County Commissioners.
Texas	Dallas	April 4, 10 a.m.	Bldg. \$15,000 to \$20,000 addition to jail, with cells, etc.	County Judge Young.
Pennsylvania	Ebensburg	April 4, 10 a.m.	Furn. and install 106 steel cells, heating plant, elec. wiring, plumbing, etc., addition to County jail.	John Owens, Chm. Co. Comrs.
New Jersey	Harrison	April 5	Furn. 2,000 ft. 2 1/2-in. cotton rubber-lined fire hose.	Peter Goodman, Town Clerk.
Pennsylvania	Scranton	April 5, 11 a.m.	Furn. two 600-gal. hori. wood or steel tank street sprinkler; also two 2-horse sprinkling wagons, 9-ft. broom, 24-in. diameter Bldg. \$110,000 Court House. J. H. & W. N. Rapp Co., Arch.	C. V. Terwilliger, Dir. Pub. Wks.
New Mexico	Roswell	April 6	Erecting \$20,000 jail and sheriff's residence.	W. M. Atkinson, Chm. Co. Comrs.
Wisconsin	Crandon	April 6	Installing sanitary one-cup drinking fountains, 3 schools.	J. M. Whisenant, Sec'y Bldg. Com.
Wisconsin	Racine	April 6, 8 p.m.	Sprinkling 25 streets from April 11 to Nov. 11, 1910.	H. F. Johnson, Chm. Bd. Educ'n.
Indiana	Evansville	April 8	Bldg. 10 miles of electric railway.	Board of Public Works.
Ohio	Ashtabula	April 8	Furn. lead-encased saturated core cable for fire alarm and police telegraph dept; cost, \$80,000; \$5,000 bond.	Elec. St. Ry. Co., Haskell Bldg.
California	Oakland	April 13, 11 a.m.	Constructing garbage crematory and building, complete.	W. B. Fawcett, Sec'y Bd. Pub. Wks.
New York	West Point	April 15, noon	Furn. 2 hose wagons, 2 chemical engines, 1 aerial ladder.	Quartermaster U. S. Army.
British Columbia	Vancouver	April 21	Bldg. 200-ton crematory or two 100-ton plants.	William McQueen, City Clerk.
Georgia	Atlanta	April 29, 5 p.m.	Bldg. public comfort station under sidewalk at Court House.	G. H. Brandon, Sec'y Bd. Health.
Indiana	Fort Wayne	May 5, 10 a.m.	Furnishing watering carts, also watering and oiling sts. in 10 districts of city; also for cleaning sts. and sidewalks in 4 districts, to Dec. 1, 1910.	G. W. Lindemuth, County Auditor.
Massachusetts	Boston	May 15		G. C. Emerson, Supt. of Streets.

STREET IMPROVEMENTS

Birmingham, Ala.—Bids will be advertised for paving 13th ave.; paving 16th ave. with asphalt binder macadam is being considered.

Gadsden, Ala.—Residents of 5th and Louise sts. have petitioned for paving.

Benicia, Cal.—Bonds have been voted in the sum of \$100,000 for the construction of macadam streets.

Oakland, Cal.—Council has ordered 5th and 6th sts. graded, curbed with granite, paved with asphalt in 6-in. concrete, and guttered with basalt block and grouted.—W. B. Fawcett, Secretary Board of Public Works.

Oakland, Cal.—Fifty-first st. has been ordered macadamized.

Oakland, Cal.—Board of Supervisors will at once improve Baker ave.

Pasadena, Cal.—Council has decided to pave with oil or asphalt macadam portions of California, Center, Walnut sts. and N. Orange Grove ave.

Pasadena, Cal.—Council is considering improvement of six streets.

Sacramento, Cal.—Fourth Supervisorial District is considering macadamizing of portion of Riverside rd.; residents of Upper Stockton have petition for asphaltting portion of road at cost of \$21,000.

San Diego, Cal.—Plans and specifications will be ready soon for estimating cost of constructing military boulevard at Fort Rosecrans. A boulevard 16 ft. to 25 ft. wide is proposed, and over 3 miles long, surfaced with granite or macadam; \$40,000 is available for the work.—Carl E. Lohr, Fort Rosecrans, San Diego, Cal., Construction Quartermaster.

San Rafael, Cal.—Supervisor M. F. Burke will soon call election on \$120,000 road bonds.

Santa Barbara, Cal.—The Board of Supervisors has ordered County Surveyor to survey and prepare plans, etc., on road work in Carpinteria Valley; estimate \$85,000.

Stockton, Cal.—Specifications are being prepared for improving Cherokee, Waterloo and Linden Roads, etc., and bids probably will be called for about April 1.—F. A. Eckstrom, Secretary County Highway Commission.

Hartford, Conn.—Plans for proposed road work have been received by the State Highway Commissioner, James H. McDonald, as follows: From Buck & Sheldon, Engineers, 4,200 lin. ft. on Roast Meat Hill and 11,400 lin. ft. on the Killingworth Turnpike in the town of Killingworth; from A. B. Alderson, Engineer, 28,250 lin. ft. on the Hart-

ford-Winsted Turnpike in the town of Canton.

New Haven, Conn.—Director Eames has received four petitions, asking that oil be used in the street sprinkling this year.

Wilmington, Del.—Street and Water Department desires \$200,000 for improvement of streets and sewers.—Senator Geo. W. Sparks, President.

Arcadia, Fla.—Citizens will vote April 26 on \$40,000 bonds for paving and other improvements.—W. M. Platt, Mayor.

Pensacola, Fla.—Citizens will vote on \$20,000 additional bonds for paving purposes and building sewers.

St. Augustine, Fla.—St. Augustine Board of Trade is urging construction of better roads in St. John's County.

Tampa, Fla.—City will pave portion of Palm ave. with vitrified brick. Address the Mayor.

West Palm Beach, Fla.—County has sold \$50,000 road bonds to Pioneer Bank.

Elberton, Ga.—City will lay concrete sidewalks on both sides of McIntosh st. from Church to Adams st., distance of one-third mile. Address the Mayor.

Coeur D'Alene, Ida.—Council has decided to issue \$167,000 bonds for grading and improving streets and purchasing water system.

Belleville, Ill.—Board of Local Improvements will open bids April 4, 3 p. m., for paving 35,000 sq. yds. with vit. brick, including excavating and curbing and small amount of sewerage.—F. J. Kern, Mayor.

Bloomington, Ill.—City is considering paving with brick and asphalt portions of nine streets.—Elmer Folsom, City Engineer.

Chicago, Ill.—Chicago Association of Commerce is urging widening of Polk st.

Dixon, Ill.—City is considering paving of Crawford st. with brick.—Blake Grover, City Clerk.

Freeport, Ill.—Board of Local Improvements has passed resolution to pave north block of Liberty st. and the east block of Exchange st.; cost \$4,218, which includes cement curb at 30c. per lin. ft. and brick paving at \$1.35 per sq. yd.

Freeport, Ill.—Bids will be received after April 15 for paving three streets with macadam and six streets with brick.—Chas. W. Peight, City Clerk.

Havana, Ill.—Council will consider ordinance ordering considerable paving; Chas. Brown, Jacksonville, will prepare plans.

Marshall, Ill.—City has under consideration 8 1/2 blocks of brick paving.—W. R. Paige, 101 and 102 Rose Dispensary Bldg., Terre Haute, Ind., Consulting Engineer.

Ottawa, Ill.—An ordinance has been passed providing for the paving of parts of

Superior and other streets with brick at an estimated cost of \$38,217.

Sterling, Ill.—Board of Local Improvements has authorized paving of portions of two streets and alleys.

Brownstown, Ind.—Bids will be received by Jackson County Commissioners about May 1 for five miles of gravel road improvements.—W. H. Wacker, County Auditor.

Columbus, Ind.—Plans are being prepared by City Engineer W. H. Rights for about 6,000 sq. yds. vit. brick paving and 3,500 ft. of concrete curb and gutter on 3d st.—Ed. Cobb, City Clerk.

Connersville, Ind.—Town Board, East Connersville, has passed resolutions for constructing about 90,000 sq. ft. of cement sidewalks 5 ft. wide.—Karl L. Hanson, Engineer.

Crown Point, Ind.—Plans and specifications will be prepared for paving and curbing North and East sts.

Elkhart, Ind.—Bids will be received by the Board of Public Works for paving W. 2d st. and Lexington ave. with either brick, sheet asphalt, asphalt blocks or bitulithic.—E. M. Chester, President.

Fairmount, Ind.—Plans are being prepared by Engineer A. R. Smith, Marion, for seven blocks of vit. brick paving, with stone curb and gutter, on Vine st.—A. Y. Stout, Marion, County Auditor.

Frankfort, Ind.—City is considering construction of brick and asphalt paving in two streets.—F. S. Cable, City Engineer.

Lafayette, Ind.—Plans are under consideration for improvement of Riverside Drive; County Commissioners will expend \$50,000.

Marion, Ind.—County Commissioners have decided to construct Soldiers' Home and 38 boulevards this summer.

Mishawaka, Ind.—City Engineer James W. Haverly has reported the maximum cost of the Lake Shore street pavement at \$19,000.

Newcastle, Ind.—City is considering paving a number of streets with vit. brick during the summer.—L. M. Johnson, City Clerk.

Rising Sun, Ind.—Board of Commissioners received no bids for improvement and construction of free pike in Cass Township.—J. P. Hemphill, County Auditor.

Seymour, Ind.—Plans are being prepared by City Engineer E. B. Douglas for two blocks of vit. brick paving on Louisville ave.—John Hauenschield, City Clerk.

Vincennes, Ind.—A survey is being made for 4 miles of gravel road east of the city. Bids will be received as soon as completed.—Joseph V. Hershey, Surveyor.

Clear Lake, Ia.—Commercial Club will

raise \$3,000 for building of six miles of piked road this summer.

Dodge City, Kan.—Highway Engineer Gaerhart has finished the survey of a route to Fort Dodge.

Fort Scott, Kan.—Bids have been rejected for paving Hill st. with brick and McDonald st. with macadam.

Ft. Scott, Kan.—Council has ordered Crawford st. paved with vitrified brick, 4-in. concrete base, sand filler and concrete curb and gutter.—Elmer Coe, Councilman.

Humboldt, Kan.—The Clerk will advertise for bids for a survey to estimate the cost of a sewer system.

Independence, Kan.—City Commission will soon let contract for some 40 or 50 blocks of paving.

Independence, Kan.—City Commissioners have passed ordinance for paving N. 11th st. with sarco macadam and Sycamore st. with brick; plans have been adopted for paving 15th st. with brick.

Pittsburg, Kan.—Plans are being prepared by City Engineer L. E. Curtman for vit. brick block paving and limestone curbing on Olive st.—O. T. Jones, City Clerk.

Topeka, Kan.—Council is considering paving of Chandler and Douthitt sts. and Western ave.

Henderson, Ky.—City Council passed ordinance providing for 3 miles of granitoid pavement; work will include 2d st. for distance of 12 blocks. Address The Mayor.

Waterproof, La.—Council has passed ordinance for building brick walk to railroad station.

Lawrence, Mass.—Mayor White has approved ordinance creating a loan of \$30,000 to block pave Lawrence st.; the Mayor also favored repaving Broadway before Lawrence st., believing the old blocks on Broadway could be used on Lawrence st.

Lowell, Mass.—Committee on Streets will recommend paving of Merrimack, Middlesex and Prescott sts.

Lowell, Mass.—Council has passed an order calling for a loan of \$68,000 for Hassam block paving.

Malden, Mass.—Plans are being prepared for bettering surface drainage condition on Florence st.

Bay City, Mich.—Residents of Michigan ave. are urging County Commissioners to construct stone road from city limits to Saginaw County line.

Bemidji, Minn.—City is considering issuance of bonds for street grading and building.

Brainerd, Minn.—City will pave two streets with macadam.—R. K. Whiteley, City Engineer.

Duluth, Minn.—Council has ordered grading and paving of Colorado ave., 7th and Clover sts.; cost \$30,195.

Eveleth, Minn.—Street Commissioner has been ordered to construct cross walks wherever they are needed.

Faribault, Minn.—The following committee are visiting neighboring cities to investigate street paving: Mayor A. P. Pierce, City Attorney C. P. Diepenbrock, City Engineer A. E. Rhame, Alderman Thomas Heiserman, Oscar Seebach, W. M. Sweeney and William Beach Smith.

Meridian, Miss.—City will vote on issuance of \$15,000 of bonds for improving sidewalks. Address the Mayor.

Carthage, Mo.—Council has passed ordinance for grading and graveling Orner st.; bids will be readvertised for grading Clinton and 2d sts.

St. Joseph, Mo.—Council has passed ordinance for paving Messaine st.; cost \$2,750; is also considering grading of Barbara st., \$5,500; paving 26th and Mary sts., \$2,250, and grading 1st st., \$8,250; also ordinances for other street improvements.

St. Louis, Mo.—On March 1 the Board of Public Improvements caused seven bills for the improvement of streets to be introduced in the Municipal Assembly. Two of them change the granite pavement to wood blocks at 4th st. and Washington ave.

Two sections of King's Highway are included. One bill authorizes granite block paving on Walnut st., from 10th st. to City Hall. This is one of the few unimproved streets in the downtown district. The streets to be paved follow: Wood blocks—Washington ave., from Kings Highway to Union; 4th st., from Chestnut to Washington; Washington, from 4th to 12th; Rauschenbach, from Benton to Hebert. Telford—King's Highway, from Gravois to Nottingham and from Nottingham to Arsenal. Granite—Walnut st., from 10th to 12th.

Libby, Mont.—Town is considering construction of two miles of sidewalks.

Misoula, Mont.—A petition has been presented to Council asking that Eddy ave. be improved by grading, parking and laying concrete sidewalks.

Hastings, Neb.—Paving of Hastings and St. Joe aves. is being considered.

Omaha, Neb.—A new route has been surveyed for a boulevard from Bemis to Mercer Park.

Concord, N. H.—Towns have appropriated \$150,000 for carrying on construction of three main roads; \$600,000 available.—H. C. Hill, State Engineer.

Boscawen, N. H.—Town has voted \$5,000 for State roads.—Harry C. Hill, State Engineer.

Camden, N. J.—An ordinance has been passed for paving Spruce st. with granite blocks.

Camden, N. J.—The Board of Trade has asked Council to repair South 2d st.

Irvington, N. J.—Council has decided to pave Avon ave. with brick.

Madison, N. J.—An ordinance providing for cement walks on seven streets has passed first reading.

Methuen, N. J.—The town has voted to macadamize North st. at a cost of \$2,500.

Ocean City, N. J.—Council has decided to build boardwalk from 51st to 56th sts.

Paterson, N. J.—Street Commissioner Thomas Brett has been authorized to advertise the intention of the city to permanently improve Park ave., from Straight to East 33d st.; River st., from the Susquehanna Railroad to 1st ave., and Mill st., from Market to Van Houten st.

The Board of Finance at its last meeting signified its readiness to issue bonds for the paving of Park ave., so that this work will be done this year.

Sussex, N. J.—Council is considering construction of substantial walk from business center to borough line.

Trenton, N. J.—Harry Harris, Engineer of Streets, has drawn plans for proposed widening of Jackson ave.

Union Hill, N. J.—Board of Council has decided to receive bids at once for repaving Bergenline ave. with granite specification blocks and foundation of concrete.

Westfield, N. J.—Council has passed final ordinances for improvement of six streets.

Westfield, N. J.—Council has finally passed \$6,000 county road bond issue.

Auburn, N. Y.—The Board of Supervisors has passed a resolution for construction of Weedsport-Cato rd.; cost \$26,913.

Mt. Vernon, N. Y.—Macadamizing of number of streets in Corcoran Manor is being considered; cost \$15,000.

Syracuse, N. Y.—Board of Contract and Supply will ask for bids for resurfacing and repairing asphalt streets on which contractor's guarantee has expired.

Akron, O.—Repaving of Mill st. is being considered; Mayor Sawyer has vetoed Edgewood improvement ordinance; cost \$10,000.

Canton, O.—City has awarded \$26,000 street bonds to Tillotson & Wolcott, at \$297 premium.

Cincinnati, O.—County Commissioners have ordered plans and specifications prepared for the improvement of Harrison Pike, from city limits to North Bend rd.; estimated cost \$15,700; also for Biddington Pike, estimated cost \$16,227; the Surveyor has estimated cost of improving South ave. and Werk rd. from Cleves and Bridgetown Pike to Cleves and Warsaw Pike, at \$8,815.

Columbus, O.—The city will proceed with the proposed improvement of a number of streets. The streets to be improved are: Norwich ave., from Neil ave. to a point opposite lot No. 19; Noble st., from 5th st. to Washington ave.; the alley north of Bryden Road, from Parsons ave. to 18th st.; 21st st., from Rich st. to Bryden Road; Engler st., from 4th st. to 7th st.; Studer ave., from Columbus st. to Schiller st.; Germania st., from Jaeger st. to Parsons ave.; Schiller st., from 17th st. to Lockbourne road; Jaeger st., from Desher ave. to Hanford st. The construction of a number of sewers also has been authorized by the City Council.

Hamilton, O.—County Commissioners will soon begin work of improving three miles of river road. Jas. C. Wonders, State Highway Commissioner.

Hamilton, O.—A resolution has been passed for tarvating Heaton st.

Hamilton, O.—A resolution has been passed instructing the City Solicitor to prepare legislation for paving N. Front st. with asphalt.

Lima, O.—City has sold \$88,200 street paving bonds.

Portsmouth, O.—Council has passed ordinance authorizing issuance of \$14,000 bonds for improving number of streets.

Springfield, O.—Board of Control is considering number of street improvements.

Wauseon, O.—City Engineer Theodore Seibold will make survey and estimate for paving Birch st.

Youngstown, O.—The Hartford Water Co., of Youngstown, was incorporated on March 11 for \$10,000, by Jacob Stambaugh, French Clingan, G. M. Booth, G. F. Hammond and J. A. Hambleton. It will put in a stone crushing apparatus and will build a storage reservoir, to supply water for the plant and for other purposes.

Bartlesville, Okla.—Bids will be received about April 15 for 16,000 sq. yds. bitulithic

paving, combination concrete curb and gutter.—W. J. Thomas, City Engineer.

Red Fork, Okla.—County will issue \$50,000 bonds for construction of roads in Red Fork Township.—A. H. Collins, Tulsa, County Engineer.

Tulsa, Okla.—Plans are being prepared by City Engineer D. C. Fenstermaker for 30,000 to 40,000 sq. yds. of asphalt paving on concrete base.—E. B. Cline, City Auditor.

Brandon, Ore.—First st. will be paved with asphalt.

Altoona, Pa.—Mayor Hoyer has approved ordinance for paving 13th ave.

Avoca, Pa.—Borough is considering paving of Main st. with brick; cost \$40,000.

Chester, Pa.—Committees on Streets and Sewers have decided to pave six streets at once.—B. G. Ladomus, City Engineer.

Lebanon, Pa.—The Hunterdon County Board of Freeholders has ordered the road from Lebanon to Clinton macadamized.

Mechanicsburg, Pa.—C. A. Bingham, Carlisle, has been selected as Consulting Engineer in charge of paving of 25,000 sq. yds. on Main st.; bids will be opened April 15.

Mt. Carmel, Pa.—Borough Council has decided to pave 3d st. for a total of six squares.

Warren, Pa.—Plans have been prepared by Engineer D. F. A. Wheelock, Lock Haven, for brick paving.

York, Pa.—Monaghan Township Committee is urging construction of about 6,000 ft. of good roads.

Covington, Tenn.—City voted \$20,000 bond issue for graveling and improving streets.—W. R. Gift, Mayor pro tem.

Humboldt, Tenn.—City has selected H. P. Farrar, Jackson, Tenn., to superintend street improvements; \$30,000 of bonds previously reported voted.

Nashville, Tenn.—Board of Public Works will expend \$200,000 for improving 21 streets, including 17th st., 12th ave., 25th ave., North Clay st., McFerrin ave., etc.—W. W. Southgate, City Engineer.

Austin, Tex.—City will remodel and strengthen culvert on S. Congress ave. over Bouldin Creek; City Engineer Iredell will prepare plans.

Austin, Tex.—Citizens have defeated proposition to issue \$150,000 street improvement bonds.

Corpus Christi, Tex.—Mayor Pease has recommended the construction of brick pavement on all streets in the fire limits; street grades will probably be raised first by hydraulic dredging.

Dallas, Tex.—Commissioner O. P. Wolcott will expend \$4,000 in improving Dallas-Fort Worth road.

Dallas, Tex.—City will macadamize Hall st., from McKinney to Ross ave., and lay concrete curbs. Address the Mayor.

El Paso, Tex.—West San Antonio st. will be paved and connected with Union Station plaza with paved approach.

Harlingen, Tex.—Citizens are considering calling election on bonds to improve streets and sidewalks.

Hillsboro, Tex.—City contemplates expenditure of \$100,000 for paving in case bond issue of \$40,000, recently noted to be voted April 2, is carried.

Orange, Tex.—A road will be built to Vinton; cost \$9,000.

Paducah, Tex.—Cottle County will vote April 2 on issuance of \$50,000 of bonds for road improvements. Address County Commissioners.

San Antonio, Tex.—Council is favorable to widening of Commerce st.

Texarkana, Tex.—Petitions for concrete curb and gutter on several streets have been favorably acted on.

Waco, Tex.—City will pave Austin ave. for 10 blocks, beginning at 8th st. with vitrified brick; cost \$60,000 to \$70,000. Address the Mayor.

Waco, Tex.—Board of Commissioners has ordered paving of Austin ave. with vit. brick; cost \$60,000.

West, Tex.—Paving of Main st. is being considered.

Salt Lake City, Utah.—City Engineer will prepare plans and estimate of cost of proposed boulevard through Ft. Douglass Military Reservation; city has decided to lay about 10 miles of cement sidewalks in Poplar Grove.

Alexandria, Va.—Council is considering appropriation of \$10,000 for streets and sewers; \$700 has been voted to purchase a carload of flagstones.—E. C. Dunn, City Engineer.

Portsmouth, Va.—Council has appropriated \$8,000 for widening Gosport causeway, joining Crawford and 1st sts. Address the Mayor.

Hillyard, Wash.—Council has passed resolution for grading Market, Hoffman and Heroy sts.

Manitowoc, Wis.—The city will contribute \$10,000 towards street paving this year and endeavor to collect \$7,000 from street car

company; hitherto property owners have paid all.

Montreal, Que., Can.—Board of Control has asked Council for \$900,000 to be spent on street repairs.

North Vancouver, B. C., Can.—Tenders will be received for 200,000 ft. of sidewalk material; new specifications have been prepared.—Geo. Hanes, City Engineer.

CONTRACTS AWARDED

Los Angeles, Cal.—The Board of Public Works awarded the contract for paving about 43 streets here to Geo. R. Curtis at 20c. per sq. ft. for asphalt, \$1.85 per lin. ft. for grading and graveling, 30c. per lin. ft. for cement curb, 30c. per sq. ft. for vit. brick gutter, 12½c. per sq. ft. for cement gutter and 40c. per sq. ft. for granite block gutters.

Springfield, Ill.—J. E. Bretz, city, paving with brick a portion of Governor st., at \$1.55 per sq. yd.

Danville, Ind.—Construction of three gravel roads, George T. Miller, of Lebanon, \$26,650; one gravel road, Walter G. Hadlep, \$9,945.

Ames, Ia.—Paving Onondago st., to Wm. Horabin, Iowa City, \$3.29 per sq. yd.

Atlantic, Ia.—10,455 yds. brick paving and 12,700 sq. yds. of asphalt paving, Capital Concrete Construction Co., of Springfield, Ill., \$1.97 per sq. yd. for asphalt, and \$2.03 per sq. yd. for brick.

Independence, Kan.—Resurfacing portion of road, to Davidson Bros., \$1.65½ a cu. yd.; total cost about \$6,000.

Leavenworth, Kan.—Granitoid sidewalks, Delaware st., to W. F. Edgell.

Leesville, La.—Curbing, 3,675 lin. ft., to E. L. Andrews, Alexandria, at 68c. per cu. ft.; 30,000 sq. ft. sidewalks, 16½c. cash or 17c., 20 per cent cash, certificates, 1, 2, 3, 4 years, at 6 per cent; grading, 85c. per cu. yd., cost plus 5 per cent for protecting awning, etc.—J. A. Sterns, City Engineer.

New Orleans, La.—Sidewalks on six streets, to C. Hyland & Co.

Kalamazoo, Mich.—Contracts for asphalt paving have been awarded to J. F. Hill & Co., and for brick, to Richard Heystich.

Faribault, Minn.—Paving number of streets, to Fielding & Shepley, St. Paul.

Mankato, Minn.—20,305 sq. yds. brick paving at \$2.30, to Fielding & Shepley, St. Paul, \$39,054; T. R. Coughlan Co., Troy, \$38,651; North Star Concrete Co., city, \$46,998, and J. W. Turner Improvement Co., Des Moines, \$42,586.

Jersey City, N. J.—Improving Wilkinson ave., to Mullin & Co., Bayonne; improving Woodlawn ave., to Van Keuren & Son; Stegman ave., to McCabe Bros.; Dwight st., to McCabe Bros.; Bostwick ave., to Reilly Bros.

Union, N. J.—Stone for roads in Union Township, to Contractor Hartshorne, Short Hills.

Corning, N. Y.—Paving, brick with gravel curb, to J. R. Steele, Oswego, \$25,249.60; macadam with tarvia surface, to J. C. Bradley, city, \$14,197.90.

Jamestown, N. Y.—Warren Brothers Co., 1,810 sq. yds. bitulithic pavement.

Grand Forks, N. Dak.—Street improvements let: Dist. No. 11, 38,000 yds. Donnellite, P. McDonnell, Duluth, Minn., \$81,000; Dist. No. 12, 20,000 yds. bitulithic, Bitulithic Co., \$73,355; Dist. No. 13, 19,300 yds. granitoid, R. S. Blome Co., 79 Dearborn st., Chicago, \$51,792; Dist. No. 14, 8,700 yds. creosoted blocks, Fielding & Shepley, 216 University ave., St. Paul, Minn., \$24,895; Dist. No. 16, 10,300 yds., bids rejected.

Cleveland, O.—The Enterprise Paving Co. has been awarded a contract for brick paving amounting to \$108,453.

Claremore, Okla.—Paving one mile, to New State Paving Co.

Miami, Okla.—Pardon S. Kaull, 27,370 sq. yds. bitulithic pavement.

Portland, Ore.—Oiling 200 miles of streets, Portland Road Oiling Co., \$28,000.

Portland, Ore.—Warren Construction Co., 20,306 sq. yds. and Pacific Bridge Co., 1,807 sq. yds. bitulithic pavement.

Oil City, Pa.—Paving Hone ave., to Burns Bros., \$35,002.30; North Seneca st., to Anderton & Putnam, city, \$26,704; Cen-

tral ave., to same firm, \$12,193; repaving S. Seneca st., to same firm, \$969.30; Lincoln ave., to Lester & Hinderle Co., \$6,727; curbing Home ave., to Burns Bros.; N. Seneca st. and Central ave., to Anderton & Putnam.

Nashville, Tenn.—J. E. Le Sueur & Co., of Nashville, to grade and macadamize Vernon ave., from 9th ave. to 11th ave., \$2,985.

Fort Worth, Tex.—Texas Bitulithic Co., 17,500 sq. yds. bitulithic pavement.

Fort Worth, Tex.—Paving May st. and Magnolia ave., to Texas Bitulithic Co.

Norfolk, Va.—F. J. McGuire, city, \$12,481 to lay combined concrete curb and gutter in Greater Ghent section; 26,000 ft. of straight curb and 870 ft. of corners.

Spokane, Wash.—The Union Iron Works, of Spokane, has secured contract for constructing a portion of the asphalt paving plant for \$4,000; and Hetherington & Berner, of Indianapolis, Ind., the contract for the equipment of same, at \$10,490 f. o. b. Spokane.—G. W. Armstrong, Secretary Board of Public Works.

Racine, Wis.—Paving portions of Racine and 11th sts., Western Improvement Co., Racine, \$42,146. Other bidders: H. C. Hanson, \$42,571; Theodore B. Wooley, \$42,224; Thatcher & Powell, \$42,763; P. B. Johnson, \$42,482; Jas. Cope & Sons, \$42,623; N. T. Reichert, \$42,455; E. R. Harding Co., \$42,426; R. R. Birdsall, \$42,307, and Federal Improvement Co., \$43,155.—P. H. Connolly, City Engineer.

BIDS RECEIVED

Wilmington, Del.—Stone crusher, Austin Western Co., Chicago, Ill., \$1,289; George B. Cresson Co., Philadelphia, \$1,864; Acme Machine Co., No. 2, \$1,259; No. 3, \$1,619; Climax Road Machine Co., New York, \$1,650; Good Roads Machinery Co., Kennett Square, \$1,050. This bid includes the taking of the old crusher.

Elizabeth, N. J.—Paving Florida st. with 6,340 sq. yds. of brick pavement on a 6-in. concrete foundation, J. J. Potts, Elizabeth, bid \$14,237.

Corning, N. Y.—Paving, 3 3-5 miles, Frank V. E. Bardol, Buffalo, brick, gravel curb, \$26,676; broken stone curb, \$27,181; macadam, gravel curb, \$14,948; broken stone curb, \$15,223.

John C. Bradley, Corning, brick, gravel curb, \$27,076; broken stone curb, \$27,682; macadam, gravel curb, \$14,197.80; broken stone curb, \$14,582.80.

James R. Steele, Owego, brick, gravel curb, \$25,249.60; broken stone curb, \$27,067.60; macadam, gravel curb, \$15,948.60; broken stone curb, \$16,718.60.

Delaware Construction Co., Sidney, brick, gravel curb, \$30,802; broken stone curb, \$31,307; macadam, gravel curb, \$18,377.40; broken stone curb, \$18,652.40.

T. S. Newman, Athens, Pa.—brick, gravel curb, \$32,155; broken stone curb, \$33,266; macadam, gravel curb, \$21,501.50; broken stone curb, \$22,049.50.

P. D. Conley, Ithaca, brick, gravel curb, \$26,594; broken stone curb, \$27,099; macadam, gravel curb, \$13,541; broken stone curb, \$13,651.

Gray & Miller, Hornell, brick, gravel curb, \$27,781; broken stone curb, \$28,286.

McGreevy, McGuigan & Baum, Elmira, brick, gravel curb, \$26,374; broken stone curb, \$26,879; macadam, gravel curb, \$14,819; broken stone curb, \$15,094.

Nevada, Mo.—Sweeping paved streets, to J. W. Oglevie.

Oklahoma City, Okla.—Asphalt paving 15.78 miles long; contract aggregating nearly \$860,000; Walker ave contract let to Western Paving Co., \$55,237; 24th, 25th and 26th sts., Western Paving Co., \$37,555; Summit and Dewey aves., no bids received (engineer's estimate, \$30,373); 27th, 29th and 30th sts., no bids received (engineer's estimate, \$33,328); Young's Boulevard, no bids received (engineer's estimate, \$18,055); 24th and 25th sts., Barber Asphalt Paving Co., Baltimore Bldg., Oklahoma City, \$33,993; 31st st., Western Paving Co. bid \$10,355 (no award made); Panama, Carroll, Orr, Jamestown sts. and Ellison and Klein aves, Western Paving Co., \$45,114; Noble ave., Cleveland Trinidad Paving Co., 420 Lakeside

ave., N. E., Cleveland, O., \$6,803; Chickasaw ave., Cleveland Trinidad Paving Co., \$12,284; 12th st., Western Paving Co., \$9,571; 7th st., Cleveland Trinidad Paving Co., \$14,231; Chickasaw ave., Western Paving Co., \$20,181; Marion ave. and 15th st., Cleveland Trinidad Paving Co., \$8,003; 20th st., Barber Asphalt Paving Co., \$2,960; Central Ave., Cleveland Trinidad Paving Co., \$4,612; Harvey and Hudson aves., Western Paving Co., \$23,093; 23d st., Western Paving Co., \$31,700; 10th st., Barber Asphalt Paving Co., \$46,350; 16th, 17th, 18th, 20th and 21st sts., no bids received (engineer's estimate, \$58,402); Drexel Boulevard, Land and Independence aves., no bids received (engineer's estimate, \$40,596); 20th and 27th sts., Western Paving Co., \$29,746; Linwood Boulevard, no bids received (engineer's estimate, \$264,249).

Oil City, Pa.—Street paving, 8,100 sq. yds. vit. brick paving, Home ave., to Burns Bros., New Castle, \$1.80 per sq. yd., 10-in. gravel foundation; 11,000 cu. yds. earth excavation, 30c.; Northwestern Construction Co., Franklin, \$31,630; Anderton & Putnam, city, \$27,790; New Castle Contracting Co., New Castle, \$28,796; Vetter Construction Co., Meadville, \$28,793.10; Jas. Nixon, \$28,009.70; Lisher & Hinderleter, \$26,979.60; setting 5,580 lin. ft. new curbing, to same firm, 55c.; sidewalks, 3,250 sq. ft., to same firm, 14c.; 8-in. gravel foundation; paving N. Seneca st., to Anderton & Putnam, 10,200 sq. yds. vit. brick, \$1.71 per sq. yd.; 10-in. concrete foundation; 8,100 cu. yds. earth excavation, 45c.; Burns Bros., \$35,023.30; Northwestern Construction Co., \$34,242.25; New Castle Contracting Co., \$30,203.50; Vetter Construction Co., \$38,474.60; Lisher & Hinderleter, \$33,644; Elmer, McLove & Sana, Corry, \$36,765, and Jas. Morx, \$32,826.50; repaving S. Seneca st., to Anderton & Putnam, \$969.30; Burns Bros., \$1,160.60; Amsler & Co., Franklin, \$1,271.70; Vetter Construction Co., \$1,055.70; New Castle Contracting Co., \$1,047.20, and Lisher & Hinderleter, \$1,036.60; street paving, Central ave., to Anderton & Putnam, 6,140 sq. yds. vit. brick paving, \$1.60 per sq. yd., 2-050 cu. yds. earth excavation, 35c.; Burns Bros., \$12,648.80; Northwestern Construction Co., \$13,891.90; New Castle Contracting Co., \$12,413; Vetter Construction Co., \$13,741; Jas. Nixon, \$13,445.60; Lisher & Hinderleter, \$12,838.20; G. M. Harris, Meadville, \$14,025.10; Brown & Crossman, Kittanning, \$14,448.50, and Amsler & Co., \$15,032.20. Lincoln st., to Lisher & Hinderleter, \$6,727; Burns Bros., \$6,745; Northwestern Construction Co., \$7,524; Anderton & Putnam, \$6,753; New Castle Paving Co., \$6,788.80; Vetter Construction Co., \$7,274; Jas. Nixon, \$7,468; G. M. Harris, \$7,230.60; Brown & Crossman, \$7,804.80, and Amsler & Co., \$8,196.60.—G. F. Roess, City Engineer.

Chattanooga, Tenn.—Paving McCallie ave., C. L. Hutcheson, lowest bidder, \$36,637.79, vit. brick; Southern Paving Construction Co., \$52,821.75; West Construction Co., \$60,656.70; asphalt, Southern Paving Construction Co., \$53,357.25 on California asphalt; West Construction Co., \$54,305.55; bitulithic pavement, Southern Bitulithic Co., total cost \$60,900.15 for 2½-in. surface, and \$58,784.55 for the 2-in. surface; Acme, California, asphalt, same company, at \$56,316.35; Trinidad and Bermudez asphalt, West Construction Co., \$58,711.

Lynchburg, Va.—S. B. Bennington, of Lynchburg, is low bidder, at \$12,800, for paving 2,000 ft. of Main st.—H. L. Shaner, City Engineer.

SEWERAGE

Montgomery, Ala.—The Western Ry. of Alabama, C. A. Wickersham, Pres., Atlanta, Ga., has decided to construct jointly with the city a concrete sewer and also fill in the ravine in place of the iron bridge now on N. Court st.—Gaston Gunter, Mayor.

Russellville, Ark.—Engineers Fuller-Cout Co., Chemical Bldg., St. Louis, Mo., have prepared plans for system of sanitary sewers, including septic tank.

Searcy, Ark.—W. S. Shields, Engineer, Chicago, Ill., estimates cost of improving water and sewer system in Dist. No. 1 at \$85,000; will open bids about April 14 for construction of 60,000-gal. reservoir and tank.—E. A. Robins, Water and Sewer Commissioner.

Oakland, Cal.—Council has adopted plans for sewerage portions of eight streets.

Oroville, Cal.—A preliminary report has been submitted to the City Council for the proposed sewer system; estimated cost, \$120,000.—B. L. McCoy, City Engineer.

San Francisco, Cal.—Park Board has demanded better sanitary conditions in Sunset district.

San José, Cal.—Bids will be advertised for construction of sewer in Priest st.

Westport, Conn.—The Fire District on March 10 appropriated \$15,000 for the construction of a sewerage system.

Wilmington, Del.—Street and Water De-

Burlington, Wis.—Contract for following was awarded Chris Petersen; bids received Mar. 15, for brick paving on 6-in. concrete base; bids include 2660 cu. yd. grading; average haul, 1,000 lin. ft.; sand, gravel and crushed stone cost 60c. per cu. yd. delivered. P. J. Hurtgen, City Engineer.

CONTRACTOR	10,321 Sq. Yds. Brick Pavement	2,500 Lin. Ft. Cement Curb	Total Amount of Bid
Chris Petersen.....	\$1.57	\$0.28	\$16,903.97
James Cape & Sons.....	1.66	.33	17,957.86
Kamschulte-Pickhard Engineering & Construction Co.	1.66	.33	17,970.36
N. F. Reichert.....	1.67	.33	18,061.07
E. Wolley.....	1.71½	.29	18,399.46
Bacheller & Powell.....	1.72	.31	18,527.12
Eul-Cochems & Nebel.....	1.76	.32	18,964.96
A. Thompson.....	1.78	.40	19,371.38
O. Farrell Construction Co.....	2.15	.54	23,540.15

partment desires \$200,000 for improvement of sewers and streets.—Senator Geo. W. Sparks, President.

Arcadia, Fla.—Citizens will vote April 26 on \$40,000 bonds for maintaining sewerage system and for other improvements.—W. M. Platt, Mayor.

Pensacola, Fla.—Citizens will vote on \$20,000 additional bonds for building additional sewers and paving.

Bloomington, Ill.—City is considering construction of vit. pipe sewers in six streets.—Elmer Folsom, City Engineer.

Marshall, Ill.—City will construct 22 blocks of pipe sewers.—W. R. Paige, 101 and 102 Rose Dispensary Bldg., Terre Haute, Ind., Consulting Engineer.

Columbus, Ind.—Plans have been prepared by City Engineer W. H. Wright for one mile of 54-in. concrete sewer and one mile of 8 to 24-in. vit. pipe sewer; cost \$29,000.—Ed. Cobb, City Clerk.

Frankfort, Ind.—City is considering construction of 8-in. vit. pipe sewers.—F. S. Cable, City Engineer.

Mishawaka, Ind.—City Engineer James W. Haverly has reported the maximum cost of the W. Lawrence st. sewer from Benton to Charlotte st., as being \$1,200. Resolutions ordering the construction of a sewer on W. Lawrence st. and a lateral sewer on S. Mill st. were adopted.

Vincennes, Ind.—The City Council has contracted for plans for a complete system of sewerage for Vincennes. Bids will be asked as soon as plans are completed.

Clinton, Ia.—Council has passed resolution for constructing sewer in alley of block 36.

Coffeyville, Kan.—City has under consideration construction of vit. pipe sanitary sewers in Queen City addition; cost \$30,000.—F. W. Yale, City Engineer.

Humboldt, Kan.—Council has received an estimate of \$30,000 as the probable cost of a sewer system.

Independence, Kan.—Bids will be received at once for construction of sewers in blocks 2 and 23.

Leavenworth, Kan.—Bids will probably be called for in two or three weeks for the construction of a trunk sewer in district 9 to cost \$24,000, and for lateral sewers, to cost \$23,000.—J. H. Kinmyer, City Clerk.

Winchester, Ky.—City is considering construction of sanitary sewer system; cost \$65,000.—S. H. Rutledge, City Engineer.

Lewiston, Me.—City has under consideration construction of one-half mile of pipe sewers.—John A. Jones, City Engineer.

Baltimore, Md.—Sewer Realty Co. is preparing plans for construction of a modern sewer system on its property at Severn Park, Anne Arundel County.—O. L. Halton, 111 N. Charles st., Secretary.

Elkton, Md.—City petitioned Legislature for authority to issue \$25,000 of bonds for construction of sewer system. Address the Mayor.

Hyde Park, Mass.—It is proposed to purchase the sewer system at a cost of \$50,000.—Clarence G. Norris, Town Engineer.

Lynn, Mass.—Committee on Drainage will soon start actual work upon Wave st., New Ocean st. and Safford st. trunk sewers.

South Haven, Mich.—Construction of lateral sewers is being considered.

Brainerd, Minn.—Construction of two blocks of vit. pipe sewers is being considered.—R. K. Whiteley, City Engineer.

Duluth, Minn.—Council has ordered estimate of cost of constructing storm sewer in Grand ave.

Red Lake Falls, Minn.—Council will grant franchise for construction of a system of sewers.—Joseph Perrault, City Clerk.

Meridian, Miss.—A bond issue of \$200,000 for public buildings and sewers will be submitted to Council.

Bozeman, Mont.—Town will vote April 4 on \$40,000 bonds for sewer purposes.

Whitefish, Mont.—Town will vote April 4 on \$10,000 bond issue for installation of sewers.

Crete, Neb.—Plans are being prepared by Engineer P. A. Edquist, 832 New York Life

Bldg., Omaha, for sanitary sewer system; cost \$40,000.

Haddon Heights, N. J.—The G. Everett Hill City Wastes Disposal Co., 156 5th ave., New York, N. Y., is preparing plans for the proposed sewer system, to cost \$53,000.—F. P. Burkhart, Borough Clerk.

Newark, N. J.—Bids will be received March 31, 3.15 p. m., for construction of Bergen st. storm water sewer and ave A sewer and branches.—M. R. Sherrerd, Chief Engineer.

Paterson, N. J.—The Board of Public Works on March 15 passed a resolution to advertise the intention of the city to construct a sewer extending from Market st. and Vreeland ave. to E. 35th st., which will drain Vernon, Buffalo and Trenton aves.; plans for the sewer have been drawn by John J. Harder, City Engineer; estimated cost \$137,000.

Perth Amboy, N. J.—An ordinance has been passed providing for an issue of \$41,000 bonds to provide for 12 sewers.

Roosevelt, N. J.—A sewer will be built in Randolph and other streets.

Westfield, N. J.—Town Council has passed finally ordinance to build 8-in. sewer in Everson pl.

Newburgh, N. Y.—Board of Health has adopted resolution asking Council to order construction of sewer in Montgomery st.

Oswego, N. Y.—L. C. Rowe, Chairman Special Commission, has recommended construction of two trunk sewers at cost of \$150,000.

Tarboro, N. C.—Town Commissioners appointed committee to recommend water and sewerage extensions into annex districts that can be made from \$20,000 bond issue. Address the Mayor.

Akron, O.—Council will issue \$3,000 bonds to construct main trunk sewer in Bowery st.—R. A. Meyers, President.

Dayton, O.—Council has passed ordinance to issue \$5,200 of bonds for construction of storm water sewers.—Wm. D. Huber, Acting Mayor.

Elyria, O.—Council has passed resolution for the construction of sewers in a portion of sewer district No. 2.—Thos. A. Conway, Mayor.

Hamilton, O.—City Civil Engineer F. E. Weaver has reported plans for a main line sanitary sewer on N. 6th st., cost \$1,738, and a storm sewer on 4th st., cost \$2,792.

Pleasant Ridge, O.—Council has accepted and adopted the surveys, maps, plans, designs and estimates of Donald W. Caven, Engineer, Pleasant Ridge, for a sewerage system and disposal plant; estimated cost, approximately \$227,000; about 15 miles of vit. pipe sewers will be required.

Sylvania, O.—Bids will be received April 13, noon, for \$7,643.27 sewer bonds.—W. B. Harris, Village Clerk.

Youngstown, O.—Council has decided to construct sewer in Penn ave. and Augusta st.—M. F. Hyland, City Clerk.

Tulsa, Okla.—The city has voted \$35,000 of bonds for the extension of sanitary sewer mains and submains and storm sewers.—John O. Mitchell, Mayor.

Belle Vernon, Pa.—State Department of Health has ordered borough to prepare plans for sewage disposal plant by Nov. 1.

Hazleton, Pa.—City has been granted permission by State Health Commissioner S. G. Dixon to install sewer system.

Meadville, Pa.—Council is considering construction of sewer in E. Chestnut st.

Warren, Pa.—Plans have been prepared by Engineer D. F. A. Wheelock, Lock Haven, for tile sewers in number of streets.

Morristown, Tenn.—Sewerage Building Committee, R. E. Smith, secretary, will have plans ready for estimates about April 20 on sewer system recently noted; contract to be let by May 15; will build disposal plant, etc.; cost of construction, \$40,000; Chas. E. Collins, engineer, Philadelphia, Pa.; when plans are completed committee will furnish copy of specifications to prospective bidders.

Austin, Tex.—Citizens have defeated proposed issue of \$100,000 sewer bonds.

Commerce, Tex.—City contemplates

granting franchise for construction and operation of sewer system; about five miles; J. H. Rush, engineer, Greenville, Tex., is interested; M. L. Moore, Secretary, Commerce Board of Trade, may also be addressed.

Corpus Christi, Tex.—The Water Works and Sewerage Committee has reported in favor of the construction of a sewerage system and septic tank and extensions of water mains; cost \$100,000. J. W. Maxcy will probably be retained as engineer.

Alexandria, Va.—Street and Finance Committee of Council has recommended that \$2,000 be appropriated on a resolution calling for \$9,000 for the continuation of the trunk sewer to drain the northwest section of the city; but one square of the sewer will be built at this time; Royal st. sewer will also be constructed at same time; \$12,000 additional has also been asked for construction of streets and sewers; estimate of \$20,000 is made for completion of trunk sewer, 4,250 ft., to drain northwest section.—E. C. Dunn, City Engineer.

Kennewick, Wash.—City is planning construction of modern sewerage system.

Princeton, W. Va.—City will construct sewerage system, to cost \$30,000.—Ernest Bruce, Engineer in Charge; G. W. Lazenby, Mayor.

Princeton, W. Va.—City will issue \$30,000 bonds for construction of terra cotta sewers.—F. R. Van Antwerp, Engineer Water Works.

Cumberland, B. C., Can.—Plans are being prepared by Government for installation of sewer system.

CONTRACTS AWARDED

Tuscaloosa, Ala.—J. White, Gurley & Co., Mobile, new sewer, \$18,000.

Lodi, Cal.—Sewer system, to J. M. Appleton and Frederickson Bros., \$51,226; furnishing pipe, to Gladding, McBean & Co., \$17,401.15.

Mayfield, Cal.—Birkett & Sonnickson, sewer system, at \$21,785.

San José, Cal.—Two sewers, to San José Constructing Co.

Greeley, Col.—Sewer work in Dist. 45, Spicer & Wattson, Colorado Springs, at \$18,659.

New Britain, Conn.—Furnishing sewer pipe for fiscal year, the Warner-Miller Co., city, at \$15,000.

Mount Sterling, Ky.—Paul & Kershner, Dayton, O., 9½ miles 6 to 24-in. sanitary sewers; reinforced concrete septic tank, at \$44,995.—H. M. Ringo, City Clerk; Chas. E. Collins, Consulting Engineer, Drexel Bldg., Philadelphia, Pa.

Kansas City, Mo.—Contract for the Brush Creek drainage plan, to Williams & Samples, \$256,580.

Vandalia, Mo.—W. C. Jucksch, Times Bldg., St. Louis, Mo., construct sewer system, at \$7,660.—Fuller-Coult Company, Chemical Bldg., St. Louis, Mo., Engineers.

Perth Amboy, N. J.—Martin Hanson, for sewer work.

Columbia, S. C.—Thornwell McMaster, city, sewer extension in Elmwood addition, at \$1,864.98.

Florence, S. C.—Sewerage pipe, to Roger Moore's Sons & Co.

Franklin, Tenn.—J. W. Worthington, president Sheffield Cast-Iron Pipe & Foundry Co., Sheffield, Ala., to extend sewer system.—Granberry Jackson, Mt. Pleasant, Tenn., Engineer.

BIDS RECEIVED

Bridgeport, Conn.—Sewers, Morehouse st. sewer, to Tool & Sunderlin; relaying Main st. sewer, to Burns & Co.; Seaview ave., sewer, Pierce Manufacturing Co.; Pacific st., to B. D. Pierce, Jr., Co.

Greenfield, Ind.—The County Commissioners have let the contract for a sewer system.

Mount Sterling, Ky.—For furnishing all materials and laying complete about 9½ miles of 6 to 24-in. sewers, also reinforced concrete septic tank, John B. McClain & Co., Newport, Ky., \$45,962; Fernow &

Burlington, Wis.—Bids received Mar. 15 for the construction of sanitary sewers, contract for which was awarded to H. Hohensee; average depth, 10 ft.; exc. in clay, sand and gravel.; (a) 1861 ft. 10-in. vit. pipe sewer; (b) 1073 ft. 8-in. vit. pipe sewer; (c) 560 ft. 6-in. vit. pipe sewer; (d) 8 manholes, each; (e) 2 lampholes, each; (f) total for sanitary sewers; also for the construction of storm sewers; average depth 3 ft.; city provides inlet covers; (g) 716 ft. 12-in. vit. pipe sewer; (h) 360 ft. 10-in. vit. pipe sewer; (i) 300 ft. 12-in. vit. pipe sewer, laying only; (j) 5 manholes, each; (k) 12 street inlets, each; (l) 1 catch basin; (m) total.—P. J. Hurtgen, City Engineer.

CONTRACTOR	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
H. Hohensee.....	\$0.62	\$0.57	\$.49	\$35.00	\$8.00	\$2,335.83	\$0.45	\$0.40	\$0.45	\$25.00	\$10.00	\$30.00	\$876.20
Thill-Manning-Whalen Co.....	.67	.63	.55	35.00	6.00	2,522.86	.45	.30	.20	35.00	5.00	30.00	755.20
Reed & Smithers.....	.70	.65	.60	30.00	10.00	2,596.15	.60	.50	.35	25.00	3.50	25.00	906.60
Eul-Cochems & Nebel.....	.75	.67	.59	30.00	6.00	2,697.06	.43	.36	.20	30.00	3.00	32.00	715.48
N. F. Reichert.....	.75	.75	.50	35.00	35.00	2,830.50	.38	.38	.38	30.00	3.00	30.00	738.88
Paul Hodges.....	.81	.77	.65	45.00	6.00	3,069.62	.60	.48	.41	35.00	7.00	35.00	1,019.40
H. C. Hansen.....	.85	.75	.65	38.00	10.00	3,074.60	.43	.38	.20	38.00	1.00	38.00	744.68
R. Nelson.....	.80	.82	.72	36.00	8.00	3,075.86	.56	.56	.40	24.00	5.00	35.00	937.56
A. Thompson.....	.85	.75	.70	38.00	10.00	3,102.60	.42	.38	.17	35.00	3.00	35.00	734.52
C. Johnson.....	1.00	.90	.80	35.00	6.00	3,566.70	.70	.60	.45	30.00	3.00	30.00	1,068.20
O'Farrell Construction Co.....	.93	.83	.73	35.00	5.00	3,320.12	.45	.40	.25	25.00	2.00	30.00	*720.20

* Bid for storm sewers submitted by Mulholland & Son.

Brown, Montclair, N. J., \$48,521; H. S. Bosler, Chattanooga, Tenn., \$47,393; Scott & Walker, Cincinnati, O., \$46,789; H. K. Bell, Lexington, Ky., \$45,810; T. S. Scanlon, Huntington, W. Va., \$45,959; E. C. McConnell, Kenton, O., \$45,247; C. E. Harris, Covington, Ky., \$42,870; C. C. Miller & Co., Covington, \$46,765; A. J. Waldrip, Knoxville, Tenn., \$52,749; Noll Construction Co., Chattanooga, \$44,746; L. W. Hancock & Co., Louisville, Ky., \$78,028; Kelley Bros., Portsmouth, O., \$49,477; James Ferry & Sons, Pittsburg, Pa., \$49,161; Clark Construction Co., Winchester, Ky., \$45,157; Paul & Kershner, Dayton, O., \$44,995; Louis Des Cognets & Co., Lexington, \$6,599, bid on septic tank only.—Charles E. Collins, Engineer, 321 Drexel Bldg., Philadelphia, Pa.

Albany, N. Y.—Concrete sewer through "sunk" meadows" north of Western ave.: John M. Holler, Albany, \$19,246; Kennedy & Easton Construction Co., Albany, \$22,470; John Doyle, Albany, \$15,418; Bruno & Pettit, Boston, Mass., \$28,026; T. Henry Dumary, Albany, \$15,862; Michael F. Dollard, Albany, \$21,315; James H. Malcolm, Albany, \$20,612; John Doyle is also low for constructing vit. pipe sewers in Manning boulevard, Myrtle ave. and Putnam st.—Walter Mellius, City Engr.

Monticello, N. Y.—Constructing portion of system of sewers and a sewage disposal plant: (a) sewers, (b) disposal plant and diverting stream, (c) total: L. F. Bannon Co., Kingston, N. Y., (a) \$88,315, (b) \$27,777, (c) \$116,092; Rider Construction Co., Monticello, (a) \$78,000, (b) \$20,000, (c) \$98,000; C. S. Lambie Co., Wabash Bldg., Pittsburg, Pa., (a) \$66,300, (b) \$26,600, (c) \$92,900, awarded contract; John W. Heller, 738 Broad st., Newark, N. J., (a) \$68,654, (b) \$30,058, (c) \$98,712; Albert M. Banker, Gloversville, N. Y., (a) \$86,000, (b) \$28,000, (c) \$114,000; the Kellum & Shaffer Co., Schenectady, N. Y., (a) \$88,300, (b) \$34,300, (c) \$122,600; Joseph B. O'Rourke & Co., 83 Journal Bldg., Boston, Mass., (a) \$82,712, (b) \$29,400, (c) \$112,112; Delaware Construction Co., Sidney, N. Y., (a) \$88,000, (b) \$28,000, (c) \$116,000; Albert Gaffey, Syracuse, N. Y., (a) \$92,827, (b) \$23,944, (c) \$116,771; Charles Ippolito, (a) \$75,640, (b) \$24,680, (c) \$100,320.—G. N. Bell, Engineer, Kingston.

WATER SUPPLY

Houma, Ala.—The Board of Aldermen has authorized Calvin Wurzlows, Mayor, to ask for bids on the pump to be installed in power house, which will increase the efficiency of the water works and make it duplicate system throughout.

Lafayette, Ala.—City will construct water works at cost of \$40,000; plans and specifications not yet prepared.—G. E. Collins, Mayor.

Opelika, Ala.—The Mayor has engaged J. B. McCrary, of Atlanta, Ga., to prepare plans for water works construction; bids are asked until April 15 for furnishing the city with water and electric lights.

Marked Tree, Ark.—City will drill artesian well, lay mains and erect tank and power house for protection in case of fire. Address the Mayor.

Russellville, Ark.—The Fuller-Coult Co., Chemical Bldg., St. Louis, Mo., is preparing plans for water works for the Russellville Water and Light Co., including pipeline, valves, hydrants, filter apparatus, pumping machinery, etc.; bids will probably be received about June 1.—A. B. Brewster, President.

Los Angeles, Cal.—Fire Commission is urging extension of water service mains in two more districts.

San Francisco, Cal.—Department of Electricity will ask Board of Supervisors for \$8,740 to cover cost of laying main cable from Fulton st. to ferry.

San Francisco, Cal.—Board of Public Works will purchase c.-i. specials for auxiliary water supply system; \$100,000 available.

Denver, Col.—Citizens will vote on following propositions in May: Purchase of water plant for \$14,500,000, extension of franchise of Denver Union Water Co. 20 years and issuance of \$8,000,000 bonds which will be offered company for plant, which, if it refuses, will be used in construction of water plant.

Hartford, Conn.—The Board of Water Commissioners has voted to lay the following water mains: Kenyon st., from Elizabeth st. southerly for 300 ft.; Magnolia st., about 300 ft.; Shultas place, 225 ft.; Mansfield st., 470 ft.

Atlanta, Ga.—On March 14 a subcommittee on new filters reported that a new plant of 8,000,000-gal. capacity will be installed at once, and it was instructed to procure bids.

Coeur D'Alene, Ida.—Council has decided to issue \$167,000 bonds for purchasing water system and grading and improving streets.

East Dundee, Ill.—Board of Trustees is planning water works system; reservoir will be constructed.

St. Charles, Ill.—City is considering sinking well at city water tower.

Farmland, Ind.—Messrs. F. Y. Mills and P. M. Bly have asked city for franchise covering water system and electric light.

West Terre Haute, Ind.—Town will receive proposition from water works companies for franchise for water works.—W. R. Paige, 101 and 102 Rose Dispensary Bldg., Terre Haute, Consulting Engineer.

Cedar Rapids, Ia.—City Water Board is planning for laying of quantity of piping during coming summer; about \$40,000 worth of various sized piping will be required.

Portsmouth, Ia.—Town will vote April 11 on \$3,500 bonds for establishment of water works system.—C. A. Monahan, Mayor.

Coffeyville, Kan.—City has rejected all bids for construction of ground water supply.—F. W. Yale, City Engineer.

Gas City, Kan.—Council has appointed committee to ascertain cost of extending water main in west part of town.

Oakley, Kan.—Citizens will vote April 5 on \$40,000 bonds to build water works system and electric light plant.

Parsons, Kan.—The Parsons Water Supply & Power Co. will let contract this spring for concrete reservoir, capacity 15,000,000 gals.—W. K. Hayes, Manager.

Scandia, Kan.—The citizens on March 7 voted to issue \$21,000 of bonds for the construction of water works.—J. S. Worley Co., Kansas City, Mo., Engineers.

Stafford, Kan.—J. S. Worley Co., Kansas City, will prepare plans for water works extension.

Syracuse, Kan.—Town has voted bonds for construction of system of water works.

Lakeland, Ky.—The State Senate has passed the bill appropriating \$90,000 for the Lakeland Insane Asylum, of which \$65,000 is to be used for a pure water supply for the institution.

Breaux Bridge, La.—City employed A. C. Jones, Opelousas, La., as consulting and constructing engineer to build proposed water works plant; when specifications are ready will advertise bids on material.

Waterproof, La.—Council has passed ordinance favoring boring of well and consequent erection of large water tank.

Hancock, Md.—City will vote on issuance of \$30,000 of bonds for construction of water works. Address the Mayor.

North East, Md.—G. A. M. Johnson, of Leslie, Md., is president of the company which proposes constructing water works at North East; estimated cost, about \$20,000; bids for construction will be received about May 1.

Lawrence, Mass.—Superintendent Collins has asked City Council to cover the eastern section of the old filter at a cost of \$55,000.

Minneapolis, Minn.—Rudolph Hering has recommended the construction of a mechanical filtration plant for filtering Mississippi River water; the plant would cost about \$500,000 and could be built in two years.

Red Lake Falls, Minn.—Bids are asked by the City Council for a franchise for constructing water works and a sewer system.—Joseph Perrault, City Clerk.

St. Joseph, Mo.—St. Joseph Water Works Co. increased capital stock from \$2,500,000 to \$4,000,000.

Libby, Mont.—Town is considering issuance of bonds for water works.

Camden, N. J.—City is considering installation of addition to water system; cost \$500,000; Committee, Mayor Ellis, Chairman, will make report.

Egg Harbor, N. J.—Citizens are urging formation of water company; application will be made for franchise.

Jersey City, N. J.—Street and Water Board is seeking legislative authority to issue \$500,000 4½ per cent, 30-year bonds, to replace worn out mains.—George J. Brackner, Commissioner.

Madison, N. J.—The purchase of a pumping engine was discussed in Council.

Methuen, N. J.—A legislative bill has been drawn up providing for an issue of \$35,000 bonds for extensions of water service.

Fort Erie, N. Y.—The citizens on March 15 voted in favor of constructing a municipal water works system.—Witmer & Brown, Buffalo, Engineers.

Honeoye Falls, N. Y.—Citizens have defeated proposition to raise \$30,000 for constructing water works system.

Lestershire, N. Y.—More wells and another steam pump are needed by village.

Newburgh, N. Y.—Water Board has instructed Engineer Blake to prepare plans for laying conduit from Patton Brook to Washington Lake.

Spencerport, N. Y.—Citizens have voted to appropriate \$38,988 for installing system of water works.—Dr. W. R. Barrett, Village President.

Troy, N. Y.—City is considering construction of storage reservoir for the water works.—E. L. Grimes, City Engineer.

Victor, N. Y.—Town has voted \$500 for extension of water mains on E. Main st.

Struthers, O.—Council has appointed committee to locate fire plugs on north side.

Youngstown, O.—Monaco Water Co. will build dam and construct large reservoirs in spring.—J. F. Taylor, General Manager.

Ciaramore, Okla.—City voted issuance of \$35,000 of bonds for extension of water works, \$15,500 for city hall and \$10,000 for park purposes. Address the Mayor.

Lawton, Okla.—City will vote on issuance of \$200,000 of bonds to enlarge water reservoir, erect dam across Medicine Creek and make necessary connections with pipe line, etc.; also \$40,000 of bonds for construction of water works extensions within city limits.—Z. M. Seifres, City Engineer.

Medford, Okla.—City is having plans prepared by O'Bannon & Foster, Blackwell, Okla., for water works extension; cost \$12,000; date of opening bids not set.—C. W. Stephenson, Clerk.

Freewater, Ore.—Town will sell \$16,000 water works bonds.

Forest Grove, Ore.—Contract to supply wooden pipe for the new water system was awarded to the Portland Wooden Pipe Co.; for the hydrants, to the Crane Co., Portland; for the c.-i. pipe, to Caldwell Bros., Portland; the approximate cost is \$12,000.

Hood River, Ore.—Bonds for \$90,000 have been sold, for the construction of water works, to include 5½ miles of wood pipe, concrete headworks basin, storage reservoir in city, and 10 miles of pipe in streets.

Portland, Ore.—Bids will be received by the Water Board April 1, 4 p. m., for furnishing and delivering f. o. b. cars Portland the following materials, separately or collectively: Sleeves and valves, 50 6-in. by 6-in., 50 10-in. by 6-in., 10 10-in. by 12-in. by 4-in.; c.-i. gate boxes, 500 c.-i. boxes for gate valves, special castings, 70,000 lbs. c.-i. special castings, more or less for water mains of 10 in. or smaller in diameter.

Butler, Pa.—The Butler Water Co. is considering the construction of a reservoir.

Johnstown, Pa.—City Engineer Masterton made an estimate of \$4,200 for drilling 21 wells, one in each ward.

Florence, S. C.—Bonds for \$30,000 have been sold to be used for water works improvements.

Newport, Tenn.—W. B. Robertson and Mr. Hedrick contemplate construction of water works to cost \$50,000.

Barstow, Tex.—Frank Garrett, Monahans, proposes to install water works system if granted franchise.

Bonham, Tex.—City voted to issue \$15,000 bonds for water works and \$10,000 for school buildings.

Henrietta, Tex.—Secretary Denton, of Board of Trade, is advancing plan for installation of adequate water supply.

Jacksboro, Tex.—City will sell \$27,500 water works bonds.—H. C. McClure, Mayor.

Lockhart, Tex.—Water meter system will be extended so as to reach all houses in town.

Provo, Utah.—Citizens will vote on \$188,000 bonds to remove water mains to high ground and install lighting plant.

Holland, Va.—W. H. Dick, Smithfield, Va., may be addressed for information relative to construction of water works; \$12,000 to be expended; capacity 500,000 gals.

Portsmouth, Va.—City will probably vote during 1910 on proposed issuance of \$600,000 for water works construction.—J. Davis Reed, Mayor.

Kennewick, Wash.—City is planning installation of domestic water pipes in one addition.

Kent, Wash.—Bids for construction of water works will be received until about April 1; this will include a pipe line 7 miles long.

Monroe, Wash.—Bids will be received until about April 1 for construction of a reservoir for the water works.—S. A. Buck, Manager Monroe Water Co.

Sedro-Woolley, Wash.—Light and Water Committee has recommended that proposition of the Skagit Improvement Co. for water and light service and fire protection be accepted by the city.

Welch, W. Va.—Town of Keystone will vote April 1 on \$22,000 bonds for improving water system.

Williamson, W. Va.—Williamson will hold a bond election on April 11 to issue bonds amounting to \$47,000, to be used in improving the water system.

Medford, Wis.—Citizens will vote on \$20,000 bonds for improving water system.

Oconomowoc, Wis.—Bids have been advertised for laying 4-in. water main on Collins st.

Hamilton, Ont., Can.—The city will build new water mains; estimated cost \$100,000.—A. F. McCaullum, City Engineer.

Regina, Sask., Can.—Ratepayers will vote on by-law for extension of water works system.

Sydney, C. B., Can.—City has applied to Legislature for authority to borrow money for water works extensions.

Burlington, Wis.—Bids received Mar. 15 for extension of water mains; contract awarded to H. Hohensee; average depth, 5.80 ft.; Eddy specials used. P. J. Hurtgen, City Engineer.—(a) 1334 lin. ft. of 4-in. pipe; (b) 4 4-in. gates and valve-boxes; (c) 1-6-in. gate and valve box; (d) 1 hydrant, new; (e) 2 hydrants, reset; (f) total.

CONTRACTOR	(A)	(B)	(C)	(D)	(E)	(F)
N. F. Reichert.....	\$0.60	\$10.00	\$30.00	\$35.00	\$10.00	\$915.20
H. Hohensee.....	.59	16.00	20.00	40.00	12.00	935.06
Mulholland & Son.....	.70	10.00	15.00	31.00	10.00	1,039.80
H. C. Hansen.....	.68	14.00	22.00	40.00	8.00	1,043.12
A. Thompson.....	.70	15.00	20.00	30.00	10.00	1,063.80
Eul-Cochems & Nebel.....	.72	10.50	18.00	32.00	15.00	1,082.48
Reed & Smithers.....	.70	15.00	25.00	35.00	15.00	1,083.80
Thill-Manville & Whalen Co.....	.83	20.00	25.00	40.00	10.00	1,272.42
Paul Hodges.....	.95	14.00	21.00	29.00	10.00	1,393.30
R. Nelson.....	.99	11.00	11.00	45.00	25.00	1,470.66

CONTRACTS AWARDED

Atlanta, Ga.—U. S. Cast Iron Pipe & Foundry Co., of Chattanooga, Tenn., for 13,788 tons of pipe, including 60-in., 36-in., 20-in. and 16-in. mains, and 12, 10, 8 and 6-in. service pipe, a total of 237,652 ft. of pipe, at \$20.56 a ton, or \$283,481.

Milford, Ia.—Des Moines Bridge & Iron Co., to construct water works, \$9,356; this does not include well, pump house and machinery.

Sioux City, Ia.—Laying 9,600 ft. 24-in. water main, to Lewis & Leeder, at 70c. per lin. ft.; estimated cost \$7,195.

Ft. Riley, Kan.—Pipe line, W. W. Cook & Sons, \$19,800; boiler house and pump, John Dalton & Sons, \$14,960; the Laidlaw Dunn-Gordon Co., boiler and pump equipment.

Waterproof, La.—Contract awarded to Layns J. Bowler Co., Welsh, to drill well.—A. McAllister, Mayor.

Jackson, Mich.—Supply city with 4,000,000 gals. of water per day, Lane & Bowler Co., Houston, at \$40,000.

Vandalia, Mo.—W. C. Jucksch, Times Bldg., St. Louis, Mo., to construct water works, \$16,120.—Fuller-Coult Co., Chemical Bldg., St. Louis, Mo., Engineers.

Perth Amboy, N. J.—Erecting pump house at Runyon, and for laying sub-foundation for new pump, to C. P. Hodgson, Metuchen; pump house contract \$4,571, sub-foundation \$5,304.50.

Syracuse, N. Y.—650 tons of c.-i. pipe, to U. S. Cast Iron Pipe Co., New York, \$16,652.40.

Delphos, O.—P. E. Stone, Lima, to dig trenches and lay 1,600 ft. of sewer pipe in manufacturers' addition.

Altoona, Pa.—United States Pipe and Foundry Co., Scottdale, piping contracts for coming year; Darling Co., Williamsport, for gate valves and manhole valves; fire hydrants, to R. D. Wood Co., Philadelphia; galvanized iron pipe and fittings, to Standard Supply and Equipment Co.

Belle Vernon, Pa.—Water supply, to Belle Vernon Water Co.

McKeesport, Pa.—Cast-iron pipe, to U. S. Cast Iron Pipe Co., Scottdale, \$1.35 less than highest bidder; gate valves, to Rennselaer Manufacturing Co.; corporation cocks, to Hayes Manufacturing Co.; curb boxes and extension valve boxes, to Anchor Sanitary Co.; supplying oil to water department, 10 years, to United Oil Co.; soda ash to Pennsylvania Salt and Manufacturing Co.

Pottstown, Pa.—Reservoir, 41,000,000-gal. capacity, cost \$50,000, to Willauer & Co.

Reading, Pa.—Cast iron pipes and specials, Standard Cast Iron Pipe and Foundry Co., \$6,868.73; R. G. Wood & Co., \$7,108.77; U. S. Cast Iron Pipe and Foundry Co., \$7,085; Warren Foundry & Machine Co., \$6,940.04. Gate boxes, Reading Scale and Machine Works, \$450; Textile Machine Works, \$570. Laying supply pipes from the Penn st. reservoirs to 8th and Penn sts., Joseph A. Martin, \$4,066.35; James O'Rourke, \$4,003.35. Scrap iron removal, Luria Bros. & Co., .73 per 100 lbs.; Pear & Isecovitz, 62½c. per 100 lbs. Building high service pumping station, Fehr & O'Rourke, \$24,465; James Matz, \$29,221; L. H. Focht & Son, \$29,900.

Valentine, Tex.—Thomas Deane, Alpine, has a contract for putting in a water distribution system; the water will come from an artesian well.

Vernal, Utah.—Water works, to D. C. Dunbar, Salt Lake City, \$18,007.

Tacoma, Wash.—Bertelson & Sons, laying water mains in Canal, River and 21st sts., \$23,800.

Tacoma, Wash.—Bismarck standpipe, to Northwest Bridge Co., \$9,277.

Townsend, Wash.—Construction reservoir No. 2, Coyne & Son, at \$12,482.

Wheeling, W. Va.—Two 20-ton cranes to be installed at water works, T. H. Wyc-koff, of Detroit, at \$5,406.

London, Ont., Can.—John McDiarmid & Co., Montreal, for pumps in new municipal pumping station at \$5,640; Lancaster Motor & Switchboard Co., Lancaster, England, motors and switchboards, at \$11,032; gas engine equipment, to Daniels Co., Stroud, England, \$13,000, and substation building, to Benjamin Hole, \$9,000.

BIDS RECEIVED

Fort Wayne, Ind.—Supplying water measuring outfits, Thompson Meter Co., New York City, Lambert disk meter, all bronze case: ½-in., \$8.40; ¾-in., \$12.60; 1-in., \$16.80; 1½-in., \$30; 2-in., \$55, up to \$375 for 6-in. size. Neptune Meter Co., New York City, Trident disk meters, same as Thompson. National Meter Co., New York City, Nash disk meters, all bronze case, same as Thompson. Hersey Manufacturing Co., Boston, Mass., model FF disk, all bronze, same as Thompson; model F disk, all bronze, \$7.40, \$11.40, \$15.20 for same sizes; model FF, half bronze, \$7.80, \$11.97, \$15.76 for same sizes; model F, half bronze, \$7.03, \$10.54, \$14.28 for same sizes; all iron, 1½-in., \$27; 2-in., \$45, up to \$337.50 for 6-in. size. Pittsburgh Meter Co., of Pittsburgh, Keystone disk meters, all bronze, same as Thompson; 10 per cent discount in lots of 3,000; 15 per cent in lots of 3,000 to 4,000; 20 per cent in lots of 4,000 to 5,000; 25 per cent for entire contract. Buffalo Meter Co., Buffalo, N. Y., American disk meters, all bronze first figures and half bronze for second; ½-in., \$6.25 and \$5.70; ¾-in., \$9.45 and \$8.55; 1-in., \$12.60 and \$11.40; 1½-in., \$22.50 and \$20.80; 2-in., \$37.50 and \$35; all iron, 1½-in., \$19.50; 2-in., \$32. Badger Meter Manufacturing Co., Milwaukee, Badger meters, all bronze, quoted according to quantity, ½-in., \$6.20 to \$6.30; all cast-iron, ½-in., \$6 to \$5.75; ¾-in., \$11; 1-in., \$16; all malleable, ½-in., \$10; 1-in., \$15; 1½-in., \$27; 2-in., \$40. Union Water Meter Co., Worcester, Mass., King disk meters, all bronze: ½-in., \$6.40; ¾-in., \$10.70; 1-in., \$14.30; 1½-in., \$25.50; 2-in., \$42.50; iron case, same sizes, \$5.90, \$10, \$13.40, \$24 and \$39; Nilo velocity meter, iron body, 2-in., \$34; 3-in., \$68; 4-in., \$300. American Valve Meter Co., Cincinnati, Acorn meters, all bronze; ½-in., \$6.95; ¾-in., \$10.40; 1-in., \$14; 1½-in., \$29; 2-in., \$40; all cast iron case, ½-in., \$6.50; 1½-in., \$25; 2-in., \$35. Henry R. Worthington Meter Co., New York City, Worthington disk meters, models D, C and B: ½-in., all brass, \$6; cast-iron, \$5.40; half bronze, \$5.70; ¾-in., all brass, \$9.50; cast-iron, \$8.75; half brass, \$9; 1-in., all brass, \$13.50; all cast-iron, \$13; half brass, \$13; 1½-in., all brass, \$27; cast-iron, \$24; half brass, \$25; 2-in., \$45, \$37, \$38, on up to \$275 for 6-in. size.

Hamilton, O.—Installing water softening system at the water works plant: W. McLead & Co., of Cincinnati, \$1,500; National Water Softening Co., Indianapolis, \$2,187; W. B. Scase & Sons Co., Pittsburgh, \$2,680; Pittsburgh Filter Manufacturing Co., \$2,000, and American Water Softening Co., Philadelphia, \$2,999 and \$3,142.

LIGHTING AND POWER

Bessemer, Ala.—Birmingham Water, Light & Power Co., T. H. Friel of North Birmingham, Ala., President, applied for franchise to supply city with light and water.

Montgomery, Ala.—Contract will be let by Lee Street Improvement Association for lighting thoroughfare.—W. M. Franks, Chairman of Committee.

Long Beach, Cal.—Edison Electric Co. will construct large power plant, cost \$10,000,000, near this city.

Sacramento, Cal.—Executive Board of the Retail Merchants' Association has taken up movement of substituting present method of lighting streets in business portion of the city by means of electroliters.

Stockton, Cal.—Stockton business districts will be illuminated with Tungsten electroliters.

Trinidad, Col.—Council is considering street lighting plan modeled after that of Denver.

Manchester, Conn.—The Glastonbury Light & Power Co. is preparing to improve the lighting service in Manchester during the summer, which will include the erection of a new power house in Glastonbury, located near Folly Brook, and a substation here and the erection of new transmission lines; it is expected to have the work completed about Aug. 1, 1910.

Seaford, Del.—Council has granted gas franchise to South Delaware Gas Co.

Augusta, Ga.—Gaslight Co. of Augusta will erect gasholder with capacity of 400,000 ft. of gas; three lifts, 86x75 ft.; will also install station meter and tar extractor; cost \$40,000.

Edison, Ga.—J. B. McCrary & Co., of Atlanta, have been engaged to prepare plans and take charge of construction of the proposed municipal electric light plant; bonds for \$8,000 have been voted.—C. J. Jennings, Mayor.

Cairo, Ill.—The McKinley system is contemplating improvements to its new gas and electric light plant here, just completed; estimated cost \$200,000.—H. E. Chubbuck, General Manager.

Marseilles, Ill.—Attorney Monroe, Joliet, representing Economy Light and Power Co., of that city, will ask Council for gas franchise.

Peoria, Ill.—Installation of ornamental lights on S. Adams st. is being considered.

Farmland, Ind.—Messrs. F. G. Mills and P. M. Bly have asked city for franchise covering electric light and water system.

Fort Wayne, Ind.—Fort Wayne Electric Co. is planning to erect two large factory buildings; site purchased.

Fort Wayne, Ind.—The City Engineer and City Electrician have been instructed by the Board of Public Works to prepare plans and estimates for the installation of a 6-inch conduit in Calhoun st. to provide for the municipal electric light, police and fire alarm wires.

Peru, Ind.—Smith, Hinchman & Grylls, Architects and Engravers, Washington Arcade Bldg., Detroit, Mich., have been selected to make plans and specifications for the installation of new machinery and other changes in the city lighting and water works system.—T. E. Dunn, City Clerk.

Allerton, Ia.—Citizens have voted to issue bonds for the installation of electric light plant; cost \$12,000.

Ames, Ia.—Col. E. G. Pratt, Chicago, has sold his gas franchise to Tenney Bros., of Newton; gas main will be laid at once.

Clinton, Ia.—Clinton Gas Light & Coke Co. will construct central electrical power plant in this city during present year.

Stafford, Kan.—J. S. Worley Co., Kansas City, will prepare plans for proposed light plant and water works extension.

Mayfield, Ky.—B. A. Ward, Memphis, Tenn., has secured franchise for a gas plant.

Annapolis, Md.—Deer Creek Electric and Power Co. has applied for incorporation; dams will be constructed on Deer Creek to generate electricity.

Baltimore, Md.—Baltimore County Water & Electric Co., Fred W. Feldner, President, 411 East Baltimore st., increased capital stock from \$300,000 to \$600,000.

Baltimore, Md.—Council is considering installation of 100 lights on South Broadway.

Baltimore, Md.—Peabody Heights Improvement Association will ask Board of Estimates that oil lamps in northern part of city be replaced by arc lamps.

Mountain Lake, Minn.—Installation of electric lighting system is being considered.

Owatonna, Minn.—Citizens have voted \$50,000 bonds for installation of municipal electric light and power plant.

Robbinsdale, Minn.—John Trump is considering the installation of electric light plant.

Maryville, Mo.—Free Lance Acetylene Gas Generator Manufacturing Co., incorporated with \$15,000 capital stock by G. A. Pickens, H. H. Martin and Wilbur C. Smith.

Springfield, Mo.—Citizens have voted franchise to T. N. Barnsdall to supply natural gas.

Trenton, Mo.—City will vote April 5 on \$55,000 bond issue for construction of electric light and power plant.

Miles City, Mont.—Council has voted to enlarge and improve equipment of electric light plant.

Beatrice, Neb.—G. W. Steinmeyer has filed a suit in the District Court asking that he be granted a water right and permission to put in a dam in the Blue River about half way between Beatrice and Holmesville. It is his intention to use the water power to generate electric current to supply light and power for Beatrice consumers. The dam site is located at the Lash farm, about half way between this city and Holmesville.

Crab Orchard, Neb.—The village has voted bonds to build an electric light plant to cost \$2,800.

Trenton, N. J.—The Trenton Power Co. has been incorporated at the office of Malcolm Buchanan, Attorney, of Trenton, with a capital of \$300,000, to operate water, gas and electric power. David Pepper, Jr., of Philadelphia, Pa., is one of the incorporators.

Akron, N. Y.—Citizens voted March 15 to grant a franchise to the Board of Trade to have an electric power system installed to light village by electricity.

Albion, N. Y.—The A. L. Swett Electric Light & Power Co. will build a new power plant of 1,000-h. p. capacity, with fireproof power house, which will contain switchboards and apparatus for service lines to Brockport, Waterport and Carlton, as well as for the town of Albion.

Castile, N. Y.—Citizens voted March 15 to install a duplicate boiler at the electric light plant, to cost about \$1,500.

Glens Falls, N. Y.—The Mills Power Co., of Glens Falls, has been incorporated with a capital of \$50,000 by James H. Cross, of Johnstown; Theodore D. Cross, of Sandy Hill, and J. Ward Russell, of Glens Falls.

Syracuse, N. Y.—Municipal Heating Co. seeks franchise to sell light and power as well as steam; company is willing to spend \$150,000 in improvements.—Thos. M. Brooks, Scranton, Pa., President.

Greensboro, N. C.—Special committee appointed by Board of Aldermen to investigate advisability of erecting lighting plant has reported favorably on proposition.

Dayton, O.—City is advertising for bids on lighting contract, which must be let early in April.—City Solicitor Briene.

Martin's Ferry, O.—Council has passed ordinance ordering \$18,000 bond issue for improvements to electric light plant.

Middletown, O.—Council has under consideration the granting of a franchise to the Middletown Gas and Electric Co. to supply light in Middletown by an underground system; company will expend \$500,000 to complete its system.

Norwood, O.—Bids will be received April 15 for \$18,000 bonds to be issued for the purpose of improving and extending the electric light plant.—L. H. Gebhart, City Auditor.

Medford, Okla.—City is having plans and specifications prepared by O'Bannon & Foster, Blackwell, for electric light plant to cost \$18,000; date of opening bids not set.—C. W. Stephenson, Clerk.

New Brighton, Pa.—Van Horn Ely, Steubenville, O., will make improvements to lately purchased electric light plant of Valley Electric Co.

Shamokin, Pa.—New \$100,000 gas plant is to be built and system made more modern by new company.

Sheridan, Pa.—Messrs. Martin and Cherington are promoting construction of electric light plant in this town to supply Newmans town, Millsbach, Klemfelterville and Schaefferstown.

Aberdeen, S. D.—The Aberdeen Street Railway Co. will soon be ready to let contracts for equipment and the construction of a power plant here.—Charles N. Herreid, President.

Austin, Tex.—Plans of J. C. Dumont for rebuilding big dam across Colorado River have been approved by Council; contract calls for dam 1,400 ft. long, 65 ft. high, and will create lake 30 miles long; cost \$1,000,000; contract is to be approved by popular vote.

Cisco, Tex.—Star Electric Co. has been incorporated with \$25,000 capital stock by W. C. Bedford, F. M. Oldham and Henry Benham.

El Paso, Tex.—Goose Neck lights will be installed on both sides of West San Antonio st.

Pearsall, Tex.—The Pearsall Water, Ice & Light Co., lately incorporated, plans to construct an electric light plant and water works system, including the erection of a building 100 x 40 ft., a steel tower and tank having a capacity of 60,000 gals. and the installation of a 75-kw. generator. C. F. Preslar is interested.

Manti, Utah.—An election will be held April 2 for a bond issue of \$25,000 for a light plant and \$15,000 for water works.

Provo, Utah.—Citizens will vote on \$188,000 bonds to install municipal electric light plant and remove water mains to higher ground.

Graham, Va.—City contemplates granting franchise for electric lighting on expiration of present franchise, June 1. Address the Mayor.

Bothell, Wash.—Bothell Electric Co. has been organized. C. W. Kimball, New York Block, Seattle, and W. A. Garlick are interested.

Birchwood, Wis.—The Wisconsin Light & Power Co. will replace its wooden dam with concrete structure.

Milwaukee, Wis.—Street Lighting Committee will report favorably on establishment of 30 gas lights.

Winnipeg, Man., Can.—The Civic Power Co. on March 4 decided to call for bids for the erection of a substation at McPhillips st. to cost about \$50,000, and for the building of a conduit system from that station to Point Douglas station at a cost of \$50,000.

Chihuahua, Mex.—Mayo River Power and Land Co., Denver, has completed its surveys, plans and specifications for first of a series of three great dams on Mayo River in extreme Western Chihuahua and Eastern Sonora for developing hydroelectric power.

CONTRACTS AWARDED

Moline, Ill.—Engine and generator for People's Power Co., to Westinghouse Electric and Manufacturing Co., Pittsburg, Pa., \$250,000.

Fort Wayne, Ind.—Turbo-generator set for municipal electric plant, to Fort Wayne Electric Works, \$35,139.

Hartford City, Ind.—Hartford City Lighting Co., franchise for 25 years, and street lighting contract for 10 years; company agrees to reduce rates of electricity for lamps and motors, and install additional street lamps, and also to build a new plant and install new machinery to cost about \$25,000.

Indianapolis, Ind.—Furnishing current for the new city hall, to the Merchants' Heat & Light Co., for current for lighting, vacuum cleaning system, elevators and a fan motor at 2.41c. a kw.-hr., the Indianapolis Light & Heat Co. bidding 3c.; also for asphalt plant at 7½c. and for the street cleaning barn at 4 c.

Lincoln, Neb.—Allis-Chalmers Co., for furnishing and erecting with concrete foundation at the Hutton lighting station one 750-h.p. cross-compound, condensing or non-condensing engine, or one turbine of the same rating, to be direct connected to a 3-phase, 60-cycle, alternating-current generator with exciter belted to engine shaft, at \$16,386.

New York, N. Y.—Furnishing portable motor-driven, air-compressor outfit to the Williamsburg Bridge, to the National Brake & Electric Co., 111 Broadway, at \$2,150.

Walters, Okla.—City awarded contract to E. R. Kerby, Lawton, Okla., for construction of electric light and power plant, water works and sewerage systems.—O'Neil Engineering Co., Dallas, Tex., Engineers.

Austin, Tex.—The Dumont-Holmes Steel Concrete Co., represented by J. C. Dumont, construction of new dam across Colorado River, to replace structure destroyed by a flood, to include the installation of a complete hydroelectric plant; the city is to pay for the works in 40 semi-annual installments of \$25,000 each, or a total of \$1,000,000.

Richmond, Va.—McCay Engineering Co., 8 East Lexington st., Baltimore, Md., for the construction of a conduit system, at \$10,700; Safety Insulated Wire Co., 114 Liberty St., New York City, for cables to be laid in the ducts, at \$7,230.

Winchester, Va.—Steam power plant for Winchester & Washington Railway Co., to Henry S. Rippel, 7 Clay st., Baltimore, Md.—P. O. Kellholtz, Continental Bldg., Baltimore, Md., Engineer.

Toronto, Ont., Can.—Canadian-British Insulated, Ltd., of Montreal, for cable for electric power plant, at \$48,024.

Winnipeg, Man., Can.—Canadian Westinghouse Co., for equipment of the municipal power distribution station at Winnipeg, at \$113,000; Chapman & Walker, for the interior lighting, heating and power system for the substation, at \$8,225; the Canadian Fairbanks Co., for supplying oil in the transformer station, at \$6,482.

FIRE EQUIPMENT

Pasadena, Cal.—Board of Commissioners is considering rebuilding of Villa st. fire house.

San Francisco, Cal.—The Supervisors have been petitioned to install additional fire alarm boxes in Eureka Valley.

San Francisco, Cal.—The Fire Commissioners have recommended to the Supervisors that all the old fire cisterns in the Mission district be repaired; the old fire cisterns at 16th and Mission and 22d and Shotwell sts., can be put in good repair at a cost of \$800.

Trinidad, Col.—Council is favorable to purchase of auto fire wagon and aerial truck; also erection of fire station on north side.

Freeport, Ill.—Citizens will vote on \$9,000 bond issue for erection of hose house in West Freeport.

Vincennes, Ind.—The Board of Works is discussing the need of an auto patrol for the police department.

Ottumwa, Ia.—City is considering purchase of one new hose wagon and quantity of hose.—John T. Brady, City Engineer.

Independence, Kan.—Architect F. N. Bender is preparing plans for erection of \$2,000 fire station.—T. S. Underwood, City Clerk.

Houma, La.—City will receive bids for a double-acting duplex steam fire pump.

Relay, Md.—Architect J. A. Burton is preparing plans for erection of fire station.

Dighton, Mass.—Town is considering purchase of chemical engine.

Dorchester, Mass.—An auto chemical truck will be purchased.

Easthampton, Mass.—City will purchase \$300 more of new hose.

Hanover, Mass.—Town will organize two

companies for service in center and south districts.

Lexington, Mass.—Town favors purchase of auto engine and remodeling of fire station.

Lynn, Mass.—Council is considering erection of \$17,000 fire house on Hollingsworth st.

Methuen, Mass.—Town has voted \$1,000 for fire hose.

Austin, Minn.—Citizens will vote April 5 on erection of city hall and fire station; cost \$5,000.

Brainerd, Minn.—City is considering purchase of hose cart.—R. K. Whiteley, City Engineer.

Hanson, N. H.—Hose and other equipment will be purchased.

Bordentown, N. J.—Bids are invited for erection of a \$2,500 fire house.

Harrison, N. J.—Bids will be received by Peter Sullivan, Chairman Fire Committee, until April 5 for furnishing 2,000 ft. of 2½-in. cotton rubber-lined fire hose.—Peter Goodman, Town Clerk.

Plainfield, N. J.—Fire Committee, Councilman Bogardus, Chairman, has been authorized to purchase 250 ft. of hose for Defender Fire Co.

Salem, N. J.—Fire Chief Smith has prepared specifications for a horse-drawn chemical engine.

Hastings-on-Hudson, N. Y.—New fire hose has been asked for.

Newburgh, N. Y.—Citizens have voted \$18,000 for purchase of site and erection of fire house for Chapman Steamer Co.

Syracuse, N. Y.—Bids will be received by Board of Contract and Supply for furnishing 650 tons of c.-i. pipe of different diameters.

Victor, N. Y.—Town has voted \$600 for purchase of hose and \$3,500 for purchase of site and erection of combined engine house and village hall.

Yonkers, N. Y.—Mayor Lennon has signed the amended ordinance providing for the purchase of a motor fire engine.

Dayton, O.—Council is considering construction of \$20,000 engine house at Dayton View.

Hamilton, O.—Clerk Egbert has been instructed by the Board of Control to write to a number of cities relative to a new fire truck, pursuant to action of City Council; Architect George Barkman has completed plans for First and Sixth Ward engine houses.

Bartlesville, Okla.—Architect Walton Everman is preparing plans for erection of fire station.

Henryetta, Okla.—A fire department has been organized; Council will purchase necessary equipment.—C. H. Kells, Chief.

Astoria, Ore.—City will purchase 1,000 ft. of hose.—C. E. Foster, Chief Engineer Fire Department.

Altoona, Pa.—Residents of Juniata Gap have formed fire company; funds will be secured for purchase of apparatus.

North Wales, Pa.—Firemen are about to purchase chemical engine.

Greenville, Tex.—Bids will be received until about April 1 for erection of two fire stations, to cost \$7,500 each.

San Angelo, Tex.—City is having plans prepared by R. E. Scott, for fire station, 42x110 ft., ordinary construction; cost \$15,000.

San Antonio, Tex.—Auto, cost \$5,000, chemical tank attached, will be purchased for Fire Chief Philip Wright.

Sherman, Tex.—Alderman Chapin suggested that a fire alarm system be put in over the city, and the suggestion was quite favorably discussed, and will in all probability be done by the City Commissioners.

Norfolk, Va.—City is having plans prepared by Lee & Diehl, Seaboard Bank Bldg., Norfolk, for police and fire station in Eighth Ward.

Norfolk, Va.—Bids have been rejected for furnishing fire department with 9,000 ft. of hose.

Janesville, Wis.—Purchasing Committee will secure 1,200 ft. of hose and two shut-off nozzles.—H. C. Klein, Chief Engineer.

CONTRACTS AWARDED

Pueblo, Col.—Fire station, to W. C. Rogers, \$6,190; J. F. Blackard, \$6,494; White & Okey, \$6,745; D. H. Rogers, \$7,075.

Fall River, Mass.—1,500 ft. of 2½-in. hose and 1,000 ft. of 3-in. hose, to Henry K. Barnes, Boston, 72½c. for 2½-in. and 90c. for 3-in.; other bidders, C. C. Callahan & Co., Canton, Mass., 74½c. and 90c.; Combination Ladder Co., Providence, R. I., \$1 and \$1.50; contract was awarded to Henry K. Barnes.

New Brunswick, N. J.—Gamewell Fire Alarm Telegraph Company, for extension of fire alarm system.

Texarkana, Tex.—Fire alarm system, to Gamewell Fire Alarm Telegraph Co., at \$5,354.50.

Spokane, Wash.—Second size Ahrens engine, to the Washington Rubber Co., at \$6,450.

BIDS RECEIVED

New Bedford, Mass.—Fire hose, Combination Ladder Co., No. 1, 6 1/4 c. per ft.; No. 2, 6 1/4 c. per ft.; No. 3, 68c. Boston Woven Hose and Rubber Co., No. 1, 64c.; No. 2, 66 1/2 c. Mechanical Rubber Co., No. 1, 68c.; No. 2, 75c. McLean-Brandon Supply Co., 7 1/4 c. per ft. Cornelius Callahan Co., 80c. Eureka Fire Hose Co., 80c. Boston Belting Co., No. 1, 85c.; No. 2, 70c. Babbitt Steam Specialty Co., No. 1, 86c.; No. 2, 71c.; C. C. Fire Hose Co., No. 1, 73 1/2 c.; No. 2, 81 1/2 c. Voorhees Rubber Co., 89c. Henry K. Barnes Fire Hose Co., No. 1, 84 1/2 c.; No. 2, 74 1/2 c. New Jersey Car Spring Rubber Co., \$1.10.

Nyack, N. Y.—New hose carriage; Robertson Fire Apparatus Manufacturing Co., \$770; S. F. Hayward, \$850; W. W. Wunder, \$765; Combination Ladder Co., \$875.

ELECTRIC RAILWAYS

Huntsville, Ala.—Huntsville Railway, Light and Power Co. is considering extension of line to top of Monte Sano.

San Francisco, Cal.—Board of Supervisors has finally passed ordinance requiring street cars to be equipped with fenders.

Chicago, Ill.—Council Committee on Local Transportation has recommended granting of franchise to Chicago and Oak Park Elevated Co. to build 4 1/2-mile branch.

Mishawaka, Ind.—Councilman Nelson Christianson introduced a resolution instructing the street railway company to replace its wooden poles with iron ones.

Waterloo, Ia.—Several new lines in this city are planned by the Waterloo, Cedar Falls and Northern Railway for this spring and other improvements, including much added motive power.

Hutchinson, Kan.—C. F. Probes is interested in extension of Hutchinson Interurban Railway to Nickerson.

Baltimore, Md.—North Maryland Railway will soon make application for charter to build electric railway in Baltimore, Hartford and Cecil Counties.—Thomas H. Robinson, Michael H. Fahey, Omar D. Crothers, Richard Dallam, Samuel C. Rowland, Murray Vandiver and Clarence C. Pusey, city, incorporators.

Lowell, Mass.—The Boston & Northern Street Railway Co. has asked permission of the Board of Aldermen to construct a diamond turnout on Lawrence st. and also to extend its tracks on that street.

Brighton, Mich.—Detroit, Lansing & Grand Rapids Railway, Detroit, has asked for franchise to build electric railway over principal streets.

Duluth, Minn.—Duluth Street Railway Co. will improve 7th ave. incline with double car service; cost \$25,000.

Virginia, Minn.—Prindle Brothers, of Duluth, were the only bidders for the street railway franchise offered for sale by Council.

Kansas City, Mo.—Council has passed ordinance ordering Metropolitan Street Railway Co. to construct extension to Lister ave.

Kalispell, Mont.—Citizens will vote in April on granting franchise to Whitefish and Polson Electric Railroad Co.

Mt. Airy, N. C.—Francis Jegiers has secured franchise to construct electric railway on Main st.

Cleveland, O.—Council is considering ordinance ordering extension of Superior ave. line; also ordinance granting extension of railway grants of Cleveland Railway Co. over streets of Collinwood.

Bartlesville, Okla.—Frank Overlees and associates will start grading this spring for electric railway 100 miles long, from Joplin, Mo., to Bartlesville and Miami, Okla.

Tulsa, Okla.—Mid-Continent Traction & Power Co. will construct electric railway, 100 miles in length, from Shawnee to Sapulpa and Taneha and Tulsa.—J. H. Burnham, Alexander Bldg., Engineer.

Chambersburg, Pa.—Chambersburg, Greencastle and Waynesboro Co. will at once extend line to Red Bridge.—R. D. Sefton, Superintendent.

Sioux Falls, S. D.—Sioux Falls and Western Railway Co. has been incorporated to construct line from this city to Wheeler, distance 126 miles; cost \$3,000,000.

Temple, Tex.—The Federal Court at Waco has ordered a foreclosure of the mortgage held by the first bondholders of the Belton-Temple Traction Co. and issued a decree ordering that the property be sold by the receiver. The sale will take place May 3.

Most of the holders of the bonds reside in Pennsylvania. Many improvements are contemplated as soon as the road is relieved of its financial difficulties. It is not doubted but what an extension to Waco will be favorably considered if the people of that city can be induced to show interest in the matter and lend financial encouragement. The people of Temple are very

anxious for an extension to Waco and also to Austin. The litigation, as a result of which the line is in the hands of a receiver, is all friendly and the bondholders will buy in the road, they being the stockholders of same, also, and all along have been practical owners.

Waco, Tex.—At a conference of citizens from all points along the line of the proposed Waco, Belton and Georgetown Railway, the report of Chief Engineer M. D. Parlin was read and adopted. Engineer Parlin estimates the cost per mile of building the track at \$14,250, not including cost of right of way, depots, telegraph lines and water tanks.

Brigham City, Utah.—Board of Commissioners has granted franchise to the Ogden & Northwestern Railroad, Ogden, to build electric railway.

Brigham, Utah.—County and city officials have granted franchises to David Eccles, Trusett, for construction of electric line from Hot Springs to this city.

Murray, Utah.—Utah Light and Railway Co. will soon start work on proposed extension to Sandy and Midvale.

Roanoke, Va.—Roanoke & Bent Mountain Railroad Co. has been organized to build a railroad from Roanoke to Floyd Court House, length about 50 miles.—Arthur L. Sibert, President.

Vinton, Va.—Roanoke Railway & Electric Co., J. W. Hancock, Manager, applied to Council for franchise to extend system and furnish Vinton with electric light and power.

Spokane, Wash.—Big Bend Transit Co. is planning to construct line from this city to Columbia River.—W. H. Nicholls, President.

Charleston, W. Va.—Electric railroad connecting several towns in Tyler, Doddridge and Harrison counties will be constructed; charter granted to the Middle Island Railroad Co. of Middlebourne.—T. Moore Jackson, C. P. Stout, of Clarksburg; I. M. Underwood, John F. Shore, Thomas P. Hill, of Middlebourne, incorporators.

Oconomowoc, Wis.—Milwaukee Light, Heat & Traction Co., Milwaukee, has applied for franchise to build lines over principal streets.

Superior, Wis.—Manager Herbert Warren, street railway company, has announced that it is the intention of the company to carry out its plans to improve Billings Park line during present summer.

Ottawa, Ont., Can.—Cost of the proposed street railway extension through Ottawa East has been estimated by City Engineer Ker at \$75,000.

Regina, Sask., Can.—Legislature has been asked for authority to enable city to construct and operate street railway and electric power, lighting and heating plants, also for the authority to purchase a transfer railway connecting three railways now in operation; estimated cost about \$10,000.

CONTRACTS AWARDED

Princeton, Ill.—Interurban for Rock River Traction Co., to Northwestern Engineering and Construction Co.

BRIDGES

Birmingham, Ala.—Street Committee has ordered estimate of cost of constructing bridge of lumber and steel between Ensly and Pratt City.

Fort Smith, Ark.—The Free Bridge Commission has instructed its engineer to complete specifications for the proposed bridge.—Waddell & Harrington, New Wilson Bldg., Kansas City, Mo., Engineers.

Pasadena, Cal.—Preliminary plans and estimates have been prepared for bridge over Arroyo-Seco.—W. F. Knight, 392 N. Las Robles ave., Chairman Bridge Committee.

San Francisco, Cal.—Board of Supervisors has passed ordinance ordering construction of southern section of reinforced concrete viaduct along Mission st.

Edwardsville, Ill.—Madison County Board of Supervisors is considering erection of bridge across Silver Creek; cost \$2,400.

Edwardsport, Ind.—County Commissioners of Knox County are considering construction of bridge over White River.

Frankfort, Ind.—City will construct four concrete bridges.—F. S. Cable, City Engineer.

Milton, Ind.—Wayne County Commissioners are considering erection of bridge over Stoland's Fork.

New Albany, Ind.—Board of County Commissioners of Washington County has advertised for bids on abutments for iron bridge spanning Blue River at Fredericksburg.

Vincennes, Ind.—County Surveyor John E. Rogers has received a telegram from Congressman W. A. Cullop at Washington, D. C., conveying the information that his bill had passed the House, granting permission

for the building of a bridge over the Wabash River at St. Francisville.

Warsaw, Ind.—The Commissioners of Kosciusko County have ordered plans for the construction of 15 new bridges; bids will be in order soon.

Dodge City, Kan.—Highway Engineer Gaerhart has made a survey for a 40-ft. concrete bridge for the road to Ft. Dodge.

Leavenworth, Kan.—Leavenworth and Johnson counties are considering repair of proposed Lenape bridge.

Centerville, Md.—County Commissioners of Queen Anne and Kent counties will widen drawbridge across Chester River; cost \$2,000.

Charlestown, Mass.—The old Mystic ave. bridge, which spans the Boston & Maine Railroad in Charlestown, is being demolished and in its place there is to be built a larger structure; estimated cost \$50,000.

Lansing, Mich.—An election will be held to provide for a bond issue for a highway bridge over the Grand River at Roberts st.

Duluth, Minn.—Council has ordered estimates of cost of rebuilding south approach to 6th ave. viaduct.

Fremont, Neb.—The Snyder st. bridge across Pebble Creek will be lengthened 20 ft.

Fremont, Neb.—Dodge and Saunders counties will at once advertise for bids for repair on bridge over Platte River.

Hackensack, N. J.—County Engineer Ralph D. Earle will prepare plans for \$40,000 drawbridge to be erected over Overpeck Creek at Leonata.

Metuchen, N. J.—A petition has been presented to the Pennsylvania Railroad asking it to build a bridge across the tracks between Metuchen and Robinvale stations.

South Amboy, N. J.—The City, county and public service officials interested have decided to widen the Bordentown ave. bridge.

Trenton, N. J.—Gov. Fort has signed Assemblyman Sullivan's bill authorizing Hudson County Board of Freeholders to spend about \$80,000 more to complete viaduct from Hoboken to Jersey City Heights.

Jamestown, N. Y.—Plans will be prepared by City Engineer Clyde G. Jones for bridge at Main st.

Oswego, N. Y.—Bids will be advertised in a few days for five piers on new lower bridge. Address Commissioner Smith, or City Engineer Snyder.

St. George, S. I., N. Y.—Bureau of Engineering has completed plans for c.-l. railings, with bronze upper rail and bronze shields; also for c.-l. lamp posts for electric lights on Jay and South sts. and Stuyvesant pl.; cost \$36,000.—George Cromwell, Richmond, Borough President.

Troy, N. Y.—City is considering constructing reinforced concrete bridge.—E. L. Grimes, City Engineer.

Elizabeth City, N. C.—The plans and specifications for the new bridge to be constructed by the Camden Ferry Co., across Pasquotank River, permission for which has been granted by the U. S. Government authorities, have been received and accepted; bids will be asked and work will probably begin within 30 or 60 days; the bridge is to be built of wood and steel and will be 600 ft. long and 10 ft. above the water; the draw is to be of the rolling lift type, with 75 ft. in the clear.

Elyria, O.—Citizens will vote on bonds for construction of a bridge over Black River at 31st st.

Niles, O.—Trumbull County Board of Commissioners has selected Engineer W. J. Watson, Cleveland, to draw plans and specifications and supervise construction of proposed Park ave. bridge.

Steubenville, O.—Jefferson County Board of Commissioners will construct a bridge over Shannon's Run.

Troy, O.—The Commissioners of Miami County have decided to construct three lift bridges over the Miami and Erie Canal and three bridges over Miami River; estimated cost \$75,000.—H. E. Whitlock, County Surveyor.

Youngstown, O.—Council has passed an ordinance to issue \$26,000 bonds for construction of a concrete arch bridge over Andrews Hollow, in Elm st.—M. F. Hyland, City Clerk.

Carbondale, Pa.—Borough will construct bridge.—B. D. Anthony, Borough Engineer.

Kaufman, Tex.—Kaufman County Commissioners decided to expend \$10,000 in construction of steel bridges.

Paducah, Tex.—Cottle County will vote April 2 on issuance of \$10,000 of bonds for bridge construction. Address County Commissioners.

Paducah, Tex.—Citizens will vote April 2 on \$10,000 bridge bonds.

Lynchburg, Va.—H. L. Shaner, City Engineer, will prepare plans and specifications for the construction of a reinforced concrete bridge across James River, connecting this city with Amherst County.

Tacoma, Wash.—Commissioners of Pierce

and Thurston counties will rebuild bridge at Sherlock; cost about \$15,000.

Bobcaygeon, Ont., Can.—County Councils of Peterborough and Victoria have decided to replace Little Bob bridge by concrete bridge.

Brantford, Ont., Can.—Ratepayers will vote April 4 on \$50,000 debentures for new bridge over canal.

Collingwood, Ont., Can.—Council is considering a \$10,000 bridge by-law.

CONTRACTS AWARDED

Decatur, Ala.—Steel bridge across Flint River, to Austin Bridge Co., Atlanta, Ga., at \$4,850.

Phoenix, Ariz.—Center st. bridge, to Mercereau Construction Co., Los Angeles, \$99,000.

Pueblo, Col.—Reflooring Spring st. viaduct, to E. W. Thurlow at \$6.50 per 1,000 ft.

Savannah, Ga.—Steel bridge over Herb River, to connect Isle of Hope with La Roche ave., to Austin Bros., Atlanta, Ga., at \$5,483; structure will be 108 ft. long and 18 ft. wide.

Hutchinson, Kan.—Bridge over Cow Creek at Main st., to Holmes & Eitel, Minneapolis, Minn., \$18,595.

Lawrence, Mass.—Arthur Mahoney, extension of the Bloody Brook culvert from Sheridan st. to the Spicket River; \$10,000 available.

Greenwood, Miss.—W. T. Young, for furnishing steel bridge at Money and at Shell Bluff; cost about \$50,000.

BIDS RECEIVED

Hutchinson, Kan.—Concrete bridge over Cow Creek on Main st.: Advance Construction Co., Waukesha, Wis., represented by Lee W. Miller, Waterloo, Ia., bridge proper, complete, excepting street railway section, \$17,000; street railway section, \$1,680; 2,000 lin. ft. of foundation piling, 40c. per ft.; concrete abutment, \$10 per cu. yd. Midland Construction Co., Fort Scott, represented by Grant Hornaday, bridge proper, \$19,743.68; street railway section, \$2,995.20; foundation, 59c.; abutment, \$9.60. H. C. Gass, Belleville, Ill., bridge proper, \$22,900; street railway section, \$220; foundation, 30c.; abutment, \$8. O'Bannaman & Foster Co., Joplin, Mo., bridge proper, \$20,477; street railway section, \$5,281; foundation, 40c.; abutment, \$12. Illinois Steel Bridge Co., Jacksonville, Ill., represented by D. L. Hammond, Kansas City, bridge proper, \$27,800; street railway section, \$2,200; foundation, 75c.; abutment, \$12 to \$16.50. Same company, another bid on different set of plans, bridge proper, \$15,350; street railway section, \$1,500; foundation, \$1.30; abutment, \$12 to \$16.50. St. Joseph Construction Co., St. Joseph, Mo., bridge proper, \$22,683; street railway section, \$2,262; foundation, 45c.; abutment, \$6.25. Same company, different set of plans, bridge proper, \$15,668; street railway section, \$1,892; no foundation extras; abutment, \$6.25.

Lansing, Mich.—Constructing a traffic bridge at South st.: (a) reinforced concrete, (b) steel: Albion Lumber Co., (a) \$15,950; Western Concrete Bridge Co., (a) \$19,175; Wynkoop-McGormley Co., (a) \$20,487; (b) \$19,900; Illinois Bridge Co., (a) \$27,700; Groton Bridge Co., (b) \$18,480.—H. A. Collier, City Engineer.

St. Joseph, Mich.—Substructure of a swing bridge at Wayne st.: G. A. Allmendinger, Benton Harbor, Mich., \$18,295; Fitzsimmons & McConnell, Tacoma Bldg., Chicago, Ill., \$23,650.—W. J. Cleary, City Engineer.

MISCELLANEOUS

Oakland, Cal.—Bids will be at once advertised for construction of 2,700 ft. sea wall; plans prepared by City Engineer Turner.

Yreka, Cal.—Funds have been voted for new recreation park.

Pueblo, Col.—Committee has been appointed to look into advisability of building city hall.

Wilmington, Del.—Major R. R. Raymond, Engineer in charge of the Wilmington District, has been authorized to purchase inspection boat, not to cost more than \$8,000.

Key West, Fla.—Establishment of city park is being considered. Councilman Ladd is interested.

Marianna, Fla.—Bids will be received April 4, 8 p. m., for \$10,000 municipal bonds.—F. G. Merritt, Town Clerk.

Atlanta, Ga.—City has plans by Olmstead Bros., landscape architects, Brookline, Mass., for improvements at Piedmont Park, including improvement of lake, construction of channel for part of water to flow through, which will form island to be reached by two bridges on west and east sides, respectively; lagoon with island in center; \$10,000 available this year.—R. M. Clayton, City Engineer.

Evansville, Ind.—Council has voted \$20,000 to purchase park grounds in industrial section.

Indianapolis, Ind.—Park Board and Landscape Architect Geo. E. Kesser are discussing improvements to be undertaken in various parks.

Columbus Junction, Ia.—Business men are considering the project of erecting large concrete dam across Iowa River north of this place.

Pittsburg, Kan.—Plans are being prepared by City Engineer L. E. Curfman for public park; cost \$40,000.—O. T. Jones, City Clerk.

New Orleans, La.—Board of Port Commissioners, Hugh McCloskey, President, has approved tentative plans for rebuilding river front wharves from St. James to Terpsichoree, and from Harmony to Jackson, distance of about 7,000 ft.

Waterproof, La.—Council has passed ordinance favoring street sprinkling.

Baltimore, Md.—Ways and Means Committee of First Branch of Council is considering establishment of recreation center at West Park.

Baltimore, Md.—Edward A. Preston, Building Inspector, will supervise erection of public bath at West and Marshall sts., 42x90 ft., fireproof; interior of tile, cement and marble; estimated cost \$30,000.

Boston, Mass.—Mayor Fitzgerald has asked for \$30,000 loan for park improvements.

Cliffondale, Mass.—Town is considering \$1,000 appropriation for street sprinkling.

Duluth, Minn.—Board of Aldermen will again take up purchase of enough equipment to establish garbage collection system.

Jackson, Miss.—Council has awarded \$238,000 bond issue to Seasongood & Mayer, Cincinnati.

Meridian, Miss.—Citizens will vote on \$50,000 bonds for erection of city hall; cost \$150,000.

Columbus, Neb.—Bonds have been voted for city hall.

Camden, N. J.—City has sold \$104,000 wharf and dock bonds to Blodgett & Co., Boston, and W. J. Thompson, of Gloucester City.

Flemington, N. J.—Village Trustees have asked for bids for erection of brick building to be occupied by Flemington Public Library Association and Hunterdon County Historical Society.

Garwood, N. J.—Council is considering erection of borough hall.

Trenton, N. J.—Superintendent Walter Firth has recommended establishment of crematory in South Trenton.

Cohoes, N. Y.—Establishment of public playground is being urged.

Mount Vernon, N. Y.—Erection of city hall is under consideration. Alderman Hermes is interested.

Mount Vernon, N. Y.—Playground Commission has asked for appropriation for playgrounds for children.

Rochester, N. Y.—City is considering erection of \$15,000 rubbish incinerator on river flats.—Frederick Elwood, Commissioner of Public Works.

Saratoga Springs, N. Y.—Taxpayers will vote April 5 to appropriate \$250,000 by a bond issue to purchase and maintain public parks.

Victor, N. Y.—Town has voted \$3,500 for erection of combined village hall and fire house.

Burlington, N. C.—City is considering erection of city hall.—M. Luther Cates, Chairman Building Committee.

Buford, N. D.—Erection of \$3,000 town hall is being considered.

Northwood, N. D.—Citizens will vote April 4 on erection of city hall building; cost \$7,000.

Akron, O.—Wm. Miller, Market House Superintendent, is favorable to erection of another market house.

Columbus, O.—Council will at once let contract for erection of \$5,000 comfort station in Franklin Park.

Columbus, O.—Plans will be ready soon for a \$40,000 stable to be built by the Columbus Garbage Department at the garbage disposal plant.—Henry Maetzel, City Engineer.

Covington, O.—Newberry Township has sold \$23,000 public hall bonds to Davis-Bertram Co., Cincinnati, for \$24,216.

Hamilton, O.—Director of Public Safety A. W. Margendant has recommended that a concrete wall and piling be driven along the river bank at A st.

Youngstown, O.—Council has authorized purchase of automobile patrol wagon at cost of \$3,000.

Allentown, Pa.—Lehigh County Commissioners have decided on \$125,000 bond issue for permanent improvements.

Shamokin, Pa.—Erection of city hall is being considered.

Providence, R. I.—Hot houses are needed for park system; also building in Roger William Park for use of athletes in summer and skaters in winter.

Austin, Tex.—The City Commission has ordered an election for April 5 that the people of Austin may ratify or disapprove the plans submitted by the Dumont Holmes Steel Concrete Co. of Chicago, and approved by the City Commission and Austin Business League, for the rebuilding of the Austin dam across the Colorado River. The proposition as previously outlined calls for \$1,000,000, to be paid for in 40 semi-annual payments of \$25,000 each from the earnings of the plant.

Cleburne, Tex.—H. S. Wilson, Judge J. M. Moore, F. L. Deal, J. C. Blakeney and others are behind the movement to build a local street railway; the circulation of petitions for subscriptions, it is thought, will show the majority of the people in favor of the line.

Dallas, Tex.—Plans have been prepared by Architects Thomson and Harris for erection of addition to county jail.

Dallas, Tex.—County Commissioners are considering installation of signs on all roads.

Fort Worth, Tex.—Citizens will vote April 7 on \$100,000 bonds for erection of combined market house and auditorium.

Pleasanton, Tex.—E. Hunt, city, has submitted proposition to build ice plant.

Norton, Va.—Town has voted \$15,000 city hall bonds.

Welch, W. Va.—Town of Keystone will vote April 1 on \$6,000 bonds for erecting addition to jail.

Milwaukee, Wis.—Dr. G. A. Bading, Commissioner of Health, will urge erection of municipal abattoir.

Milwaukee, Wis.—Dr. G. A. Bading, Commissioner of Health, is urging flushing system of cleaning streets.

Moose Jaw, Sask., Can.—Department of Railways and Telephones will spend \$125,000 in city this year.—S. P. Porter, Deputy Minister.

CONTRACTS AWARDED

San Bernardino, Cal.—James McNair, for garbage disposal for three years; he will construct an incinerator and provide airtight wagons.

Pueblo, Col.—Pavilion to be erected for dancing, skating and musical purposes in City Park, to Daniel Mahoney and Frank Cherry.

Tampa, Fla.—Summer uniforms, 30 for police, to Jos. Weiland; 30 for fire department, to Watson, Parker & Reese.

Pittsfield, Mass.—Zahn Bros., of Peck's Road, for collecting garbage and caring for the public dump for five years, at \$79,500.

Kansas City, Mo.—Market, C. H. Fristoe, at \$6,965, for brick and terra-cotta work; Western Building Co., at \$1,095, for roofing, and to Missouri Sidewalk & Construction Co., at \$3,333, for sidewalk and curbing around building; contractors of Kansas City.

New York, N. Y.—For rebuilding crib-work and filling in bank on the easterly side of the Harlem River, in Macomb's Dam Park, Borough of the Bronx, Godwin Construction Co., 30 Church st., \$8,775; other bidders, Fox, Hennessey Co., 81 E. 125th st., \$9,035; the New York State Construction Co., 78 Broad st., \$11,145; Thos. O'Connor, 633 2d st., Brooklyn, \$9,195; John F. O'Heir, 3052 Perry ave., Bronx, \$8,870; Grant Rohrer, 299 Broadway, \$9,108.

Philadelphia, Pa.—Construction of a concrete bulkhead on the Delaware River at South st. Latta & Terry Construction Co., Pennsylvania Bldg., \$8,441; other bidders, Filbert Paving & Construction Co., \$9,300; B. F. Sweeten & Son, \$9,807, and the American Paving & Construction Co., \$9,925.

BIDS RECEIVED

Moline, Ill.—Park improvements, H. C. Klehen, lowest bidder, \$40,113.43.

Boston, Mass.—Street cleaning in Dorchester and Ashmont, to John H. Winsloe, for \$10,979; Brighton, to F. B. McKinney, \$5,990, and West Roxbury, to Joseph McGreevey, \$8,490. Watering and oiling streets, South Boston and Dorchester North, to Thomas F. Lynch, for \$5.18 a day for each double team; East Boston and Charlestown, to J. P. O'Riordan, \$5.40 a day; Brighton, to J. H. McCarthy, \$5.25 a day; West Roxbury, to M. McGinnis & Co., \$5 a day; Dorchester and Ashmont, to John H. Winsloe, \$4.94 a day; Roxbury South and Jamaica Plain, to James E. Noble, \$5.15 a day; South end and Roxbury North, to Joseph McGreevey, \$5 a day, and the North and West ends and Back Bay, to W. Gilligan Co., \$5.25 a day.

Lima, O.—Erecting Tuberculosis Hospital, Henry Schenk & Co., Erie, Pa., \$75,000; Smith & Sherrick, Lima, \$69,456; Jacob Wentz, Lima, \$76,633.78; J. C. Bullinger, Lima, \$34,447, including plumbing and heating; W. F. Brodbeck, St. Marys, \$99,494.11, including plumbing and heating; E. E. Wood, Lima, \$69,225; Ohio Valley Construction Co., Parkersburg, W. Va., \$67,515.

TOO LATE FOR CLASSIFICATION

STREET IMPROVEMENTS

Ft. Rosecrans, San Diego, Cal.—Plans are being completed for military boulevard, three miles long, 16 to 25 ft. wide, to be surfaced with granite or macadam; appropriation available \$40,000.—Carl E. Lohr, Construction Quartermaster.

San Diego, Cal.—All bids opened by Board of Supervisors for constructing new road on Musseys Grade were rejected; new bids will be received; probable cost \$15,000.

Atlanta, Ga.—Bids will be received April 4, 3 p. m., for 3,500 sq. yds. creosoted wood block paving.—J. P. Foster, City Clerk.

Clarinda, Ga.—Bids will be received 12, 7.30 p. m., for 20,500 sq. yds. concrete paving.—C. W. Stuart, City Clerk.

Butler, Ind.—Bids will be received April 5, 2.30 p. m., for constructing 33,000 square yards, paving.—L. C. Buehrer, City Clerk.

New Bedford, Mass.—The city will probably spend \$250,000 on streets and sewers.

Detroit, Mich.—Bids will be received April 5, 2 p. m., for constructing concrete roads on Michigan, Woodward and Grand River roads.—John S. Haggerty, Chairman County Road Commissioners.

Sherman, Neb.—The City Secretary has been authorized to advertise for bids for a mile of paving, the bids to be opened the first meeting in May; the matter of passing the special paving act was postponed for the present.

Buffalo, N. Y.—Bids will be received April 7, 11 a. m., for paving a number of streets.—Francis G. Ward, Commissioner of Public Works.

Niagara Falls, N. Y.—Bids will be received April 5, 7.30 p. m., for constructing macadam or other pavements on eight streets.—Thos H. Hogan, City Clerk.

Grand Forks, N. D.—Bids will be received April 4, 5 p. m., for 1,500 sq. yds. paving.—W. H. Alexander, City Auditor.

Xenia, O.—Bids will be received April 25, 10 a. m., for macadamizing 2 miles of Jamestown and Bowersville pike.—A. G. Carpenter, President Board of County Commissioners.

Guthrie, Okla.—It is proposed to lay some asphalt pavement this year; amount not yet decided upon.—E. B. Hocker, City Engineer.

Okmulgee, Okla.—Bids will be received April 4, for 27,112 sq. yds. asphalt paving.—F. Villiers, City Clerk.

Altoona, Pa.—Fourteenth ave. will be paved and sewer will be laid in 5th st. alley.

McKeesport, Pa.—The Finance Committee has appropriated \$10,000 for the repaving of 5th ave. from Highland st. bridge to Huey st., about six blocks.

Paducah, Tex.—Citizens will vote April 2 on \$50,000 road bonds.

Taylor, Tex.—The \$200,000 bond issue election for good roads in Commissioners' Precinct No. 4 of Williamson County was carried.

Roanoke, Va.—At an election March 23 on a proposed bond issue of \$800,000, the items for sewers, streets, fire stations and schools, amounting to \$500,000, were successful; the item of \$300,000 for municipal buildings was defeated.

CONTRACTS AWARDED

Washington, D. C.—Macadam roads, walks, etc., at Walter Reed General Hospital, to United Engineering and Construction Co., Baltimore, Md., for \$10,201.

Ames, Ia.—Wm. Horrabin, Iowa City, 23,012 sq. yds. creosote wood block paving, 3 in. deep, a 1-in. sand cushion, 4-in. concrete base, with excavation for depth of paving included, \$2.03; 1,030 cu. yds. extra grading required by specification, 45c.; 1,287 lin. ft. for concrete curb, 6x18 in., 35c.; 830 cu. yds. extra concrete, \$3.50; 100 lin. ft. false curb, 35c.; 8,000 lbs. c-i gutter plates, 3½c.; total \$51,055; totals of other bids: E. J. Sweet, Boone, \$76,842; Western Paving Co., Des Moines, \$58,070; Miracle Construction Co., Minneapolis, Minn., \$57,966, and J. W. Turner, Des Moines, \$65,699.

Flint, Mich.—Asphalt Block Pavement Co., paving with asphalt block portion of Garland st., \$19,769.

St. Paul, Minn.—Macadamizing Bald Eagle ave., to P. J. Ryan, \$3,548; J. J. Mergens, grading and macadamizing Lexington ave., \$14,680, and Centerville rd., \$9,760.

Sylvania, O.—Contract for paving Ohio ave., bids opened March 15, has been awarded to Reilly & Flier, The Nasby, Toledo, for \$10,568.—Riggs & Sherman, The Nasby, Toledo, Engineers.

Neenah, Wis.—Chris. Johnston has secured the contract for paving a portion of Sherry st. with concrete at \$5,098.

Winnipeg, Man., Can.—Contract for a railway asphalt plant, bids opened March 1, has been awarded to P. D. Cummer & Son Co., Cleveland, O., for \$16,500; it will have a capacity of 1,800 yds.

SEWERAGE

San Francisco, Cal.—City Supervisors will construct sewers in section D of the Yerba Buena district at a cost of about \$220,000.

Berwyn, Ill.—Bids will be received April 6, 8 p. m., for laying 24-in. vitrified pipe, etc.; cost, \$2,148. Geo. E. Norton, Secretary, Board of Local Improvements.

Miller, Ind.—Bids will be received April 1, 7 p. m., for a drainage system including 15,000 cu. yd. excavation in ditch and 2,100 lin. ft. 36-in. reinforced concrete pipe.—M. J. Zellbor, Town Clerk.

Binghamton, N. Y.—City Engineer John A. Giles has received from the State Department of Health at Albany the James st. sewer plans sent to Albany some time ago, with the approval of the Department, and permission to drain into the Susquehanna River; work will now be ordered and the Board of Contract and Supply will ask for bids.

Bowling Green, O.—Council is considering the passage of legislation for a disposal plant at this place; State Health Board has ordered it.

Okmulgee, Okla.—Bids will be received April 4, for constructing 2,000 ft. 6-in. and 8-in. vit. pipe laterals.—F. Villiers, City Clerk.

Portland, Ore.—It is proposed to construct sewers in the Peninsular district, to cost \$1,200,000; the work will be divided in four districts, and bids for district No. 4 will be received in May; cost of work in this district \$155,000.—S. H. Cobb, Engineer of Sewers.

McKeesport, Pa.—Finance Committee has appropriated \$4,000 for preparation of plans for a new sewage plant.

Wenatchee, Wash.—Bids will be received April 20 for construction of sewer system; cost \$255,000.—C. C. Ward, City Engineer.

CONTRACTS AWARDED

Los Angeles, Cal.—Jos. Gorbavach, main sewer on Pasadena ave., \$17,998.

Lodi, Cal.—Sewer system, to J. M. Appleton and Frederickson Bros., of Lodi, \$32,540; furnishing pipe, to Gladding, McBean & Co., \$17,401.

Kansas City, Mo.—Joint district sewer in Brush Creek watershed, to Williams & Samples, city, for \$256,580; other bids: (a) Jackson reinforced concrete pipe; (b) Merriweather reinforced concrete pipe; (c) reinforced concrete pipe sewer; (d) brick sewer: Williams & Samples, city, (a), \$256,580, (b) \$259,861; John Stiffler, Springfield, Ill., (a) \$283,549, (b) \$270,636, (d) \$309,376; M. Walsh, city, (c) \$281,936, (d) \$285,990; T. McCarty, city, (c) \$316,655; Wm. C. Mullins, city, (c) \$311,103.

Monticello, N. Y.—Portion of the sewer system and for a garbage disposal plant, to C. S. Lambie Co., Pittsburg, Pa., \$92,900.

The detail bid of C. S. Lambie & Co., is as follows: 45,966 lin. ft. trench and back fill, to 18 ft. deep, 30c. to \$1.80 per lin. ft., according to depth; 43,513 lin. ft. of pipe, 8 to 24 in., to furnish and lay, 20c. to \$1.50; 100 ft. 4x2 ft. concrete sewer, \$3.50; 1,493 branches and specials, 8 to 24-in., 63c. to 85c. each; 134 manholes, 10 to 20 ft., \$40 to \$100 each; 26 5-in. flush tank siphons, each \$47; 60 M. ft. lumber, \$40 per M.; 970 cu. yd. concrete, \$8 to \$8.50; 2,550 cu. yds. earth cut fill, 60c.; 5,050 cu. yds. earth borrow and fill, 50c.; 150 cu. yds. dry rubble masonry, \$6; 6,000 cu. yds. rock in trench, \$2; 2,000 cu. yds. earth excavation, 55c.; 23,500 lin. ft. tile, 7 to 28c.; 610 lin. ft. concrete conduit, \$1 to \$1.50; 1,900 cu. yds. gravel for filter beds, \$1.65; 800 rods diverting stream, per rod, \$1; total, including sewers and disposal works, \$92,900.

Clinton, Okla.—Pipe sewers, to Heman Construction Co., St. Louis, Mo., \$17,838.

WATER SUPPLY

Elberton, Ga.—The question of additional filter capacity at the water works is under consideration.—G. W. Hubbard, Superintendent.

Caldwell, Ida.—It is proposed to drive two deep wells, erect a pump house, erect a 500,000-gal. standpipe, lay new wood and steel pipe, and purchase and install a pump.—C. J. Shorb, City Clerk.

Kankakee, Ill.—Bids will be received April 11, noon, for constructing a steel tower and tank at the State Hospital. Frank D. Whipp, Fiscal Supervisor.

Mitchell, Ind.—City may grant a franchise for water works; nothing definite has yet been done.

South Bend, Ind.—Bids will be received April 5, 1.30 p. m., for furnishing and delivering in car load lots, cast iron pipes and fittings.—C. P. Creighton, Clerk.

Fenton, Ia.—Citizens have voted \$5,000 bonds for water works.—T. M. Bilsborough, City Clerk.

Grinnell, Ia.—City Engineer W. F. Beard

estimates the cost of 40 blocks of water mains in West Grinnell at \$12,000.

Topeka, Kan.—Bids will be received April 5, 2 p. m., for digging well at Industrial School.—F. W. Knapp, Secretary.

Detroit, Mich.—Bids will be received April 12, 4 p. m., for furnishing 250 tons special castings.—Benj. F. Guiney, Secretary, Board Public Works.

Hancock, Mich.—General outline plans for the 1,000,000-gal reinforced concrete reservoir for auxiliary water system has been approved by Council; specifications will be prepared immediately, and contracts awarded, the City Engineer favoring beginning work on the big tank by the middle of April if possible; cost \$10,080.

Minneapolis, Minn.—The Water Committee has recommended that water mains be laid this season on numerous streets; probable cost \$400,000.

California, Mo.—Bids will be received April 7, 3 p. m., for constructing a system of waterworks.—H. E. Blakeman, City Clerk.—Burns & J. McDonnell, Engineers.

Geneva, N. Y.—Wm. S. Johnson, 101 Tremont st., Boston, Mass., has been selected to prepare plans for a filtration plant, larger water mains and a sewage disposal plant.

Spencerport, N. Y.—Citizens voted March 15 to issue \$38,988 bonds for water works.

Dayton, O.—A bill has been introduced in the Legislature to create a commission of five with authority to deal with the water question.

Guthrie, Okla.—Is proposed to expend \$50,000 for water extensions, \$20,000 for storm sewers, and \$25,000 for park improvements.—E. B. Hocker, City Engineer.

Toronto, Ont., Can.—City Engineer has been instructed to report on the practicability and cost of extending the intake pipe 1,000 ft. further out in the lake, and sink it 100 ft. below the surface.

CONTRACTS AWARDED

Santa Ana, Cal.—Crane Co., Los Angeles, furnishing 30 tons, 4-in. c. i. pipe, at \$35.50 per ton.—Ed. Tedford, City Clerk.

Roslyn, Wash.—Furnishing f. o. b. shipping point flanged spiral riveted steel pipe and also straight steel pipe, requiring about 5,273 ft. of extra heavy, 5,756 ft. double extra heavy, and 14,794 ft. standard steel pipe, to Crane & Co., Seattle.

LIGHTING AND POWER

Berkeley, Cal.—The question of establishing a municipal electric light plant is under consideration.

Grangeville, Ida.—Walter H. Hill has applied to Council for a 30-year franchise for an electric light and power system, and will soon begin construction on a plant on Clearwater River, five miles northeast of here, to have a minimum capacity of 400 h.p.; estimated cost \$50,000.

Farmville, N. C.—The citizens have voted to instruct the Board of Aldermen to proceed with the construction of a municipal electric light plant.

Lead, S. D.—Council has granted the Consolidated Power & Light Co. of Lead a franchise to operate in this city.

Belton, Tex.—Council has granted W. W. Thornton a franchise for an electric light and power plant.

Port Angeles, Wash.—Council has granted the Port Angeles Power and Electric Co. a 25-year franchise to furnish electricity in Port Angeles for lamps and motors; company proposes to construct a hydroelectric power plant on Little River.

CONTRACTS AWARDED

Indianapolis, Ind.—Electric light fixtures for new city hall, to the Sanborn Electric Co., city, \$17,245; electricity for lamps and motors, to Merchants Heat and Light Co., at 2.41c. per kw.-hour.—Rubush & Hunter, Architects.

Holyoke, Mass.—Boilers and stokers for electric lighting station, to Babcock & Wilcox Co., New York, at \$21,383 for boilers and \$7,353 for the stokers.

FIRE EQUIPMENT

Oakland, Cal.—Bids are invited by the Board of Public Works April 13, 11 a. m., for furnishing lead encased saturated core cable for the Fire Alarm and Police Telegraph Department; \$5,000 surety bond; entire improvements to cost \$85,000.—W. B. Fawcett, Secretary.

Brunswick, Me.—Purchase of new fire alarm boxes is being considered.

Newark, N. J.—Bids will be received by the Board of Fire Commissioners March 30, 3.30 p. m., for an automobile, price not over \$3,500, for the Fire Chief.

Brooklyn, N. Y.—A combined engine and truck house will be built on 12th ave., near 42d st., at a cost of \$47,500.

Tulsa, Okla.—About July 5 the following supplies and apparatus will be purchased: 2,000 feet fire hose; one hose wagon; one auto or steam engine.—John A. Oliphant, Fire Commissioner.

Altoona, Pa.—Council has passed ordinance for erecting additional fire house in the Third Ward.

CONTRACT AWARDED

Altoona, Pa.—Fire hose: 1,000 ft., Eureka Hose Co., New York, \$1.20 per ft.; the Chicago Fire Hose Co. bid \$1.10; New Jersey Car Spring and Rubber Co., 80c. per ft. for the multiple or 3-ply hose.

ELECTRIC RAILWAYS

Bryan, Tex.—Judge J. W. Doremus filed charter of the Bryan & College Interurban Ry. Co., with the principal office at Bryan, capital stock \$20,000, all paid in; purpose, the construction and operation of a line between Bryan and College, 6½ miles in length. Incorporators: H. O. Boatright, G. S. Parker, O. E. Gammell, J. W. Doremus, J. E. Butler, J. T. Maloney and A. W. Wilkerson, of Bryan; W. H. Hunter, of Shreveport, La., and S. S. Hunter, of Arcadia Parish, La.

Dallas, Tex.—J. Mercer Carter and associates have asked the city to proceed with establishing grades on Parry Exposition, Armstrong, Haskell, Annex, Fitzhugh, Watt and Juliette sts.; it is stated in the request that the owners are ready to begin the work of laying the line for city service that will in time be ready for interurban service as well.

Midvale, Utah.—Mass meeting is to be held for discussing the proposed extension of the street car line to Bingham.

Salt Lake City, Utah.—An active campaign has been started in Washington County to raise a bonus of \$100,000 among the citizens to be used as an inducement for Frank Dudley to build a branch road from a point near Bellevue to St. George, there to connect with the proposed road from Lund, on the Salt Lake Route to Grand Canyon.

BRIDGES

Globe, Ariz.—Bids will be received April 7, noon, for constructing foot bridge across Pinal road.—Jas. H. Welch.

Bridgeport, Conn.—M. F. McKenna, City Engineer, has prepared plans for reinforced concrete bridge over Rooster River on Brooklawn ave; cost \$6,000.

English Lake, Ind.—Bids will be received April 4, for constructing a bridge over Kankakee River.—C. H. Miller, County Auditor.

Noblesville, Ind.—Bids will be received April 12, 10 a. m., for the construction and repair of several bridges and culverts.

Princeton, Ind.—Bids will be received April 4, for constructing 24 steel bridges, 20 to 24-foot spans.—W. T. Roberts, County Auditor.

Clinton, Ia.—Bids will be received April 4, noon, for constructing steel and concrete bridges.—F. W. Leedham, County Auditor.

Boston, Mass.—It is proposed to construct a bridge to replace the Meridian st. structure.—Wm. Jackson, City Engineer.

Humboldt, Neb.—Bids will be received April 4, for constructing three steel bridges.—C. M. Linn, Secretary, Drainage District.

Kirkwood, N. J.—The cost of rebuilding the bridge between Kirkwood and Conklin has been estimated at \$4,000.

Troy, N. Y.—The Solomon-Norcross Co., Candler Bldg., Atlanta, Ga., has presented to Council plans for the improvement of the Dry River course; the plans call for the abolishment of Dry River and Gas House Creek, and provide for a sewer to replace the present Dry River channel; there were five schemes presented to Council, ranging in cost from \$162,943 to \$265,483.

Bismarck, N. D.—Bids will be received April 5, 11 a. m., for steel culverts.—I. W. Healy, County Auditor.

Cincinnati, O.—Bids will be received April 15, noon, for constructing two small concrete bridges.—Fred Dreihls, Board of County Commissioners.

Sherman, Tex.—The Mayor and Secretary were instructed to advertise for the construction of a bridge over Post Oak Creek on West Lamar st., the bids to be opened at the first meeting in May.

Milwaukee, Wis.—Bids will be received for constructing a concrete foot bridge in Humboldt Park.—Board of Park Commissioners.

CONTRACTS AWARDED

Sioux City, Ia.—Erecting Market Street Bridge, Lewis & Leeder, \$2,938.—G. H. Skeels, City Engineer.

Ann Arbor, Mich.—Two-span concrete bridge over Huron River, Herman Tapp Construction Co., Ft. Wayne, \$9,200.—A. W. Grosvenor, Ft. Wayne, Designing Engineer.

St. Louis, Mo.—Reconstructing northern portion of 18th st. bridge: Superstructure to Missouri Bridge & Iron Co., Fullerton Bldg., \$59,864; substructure to Geisel Construction Co., 620 Chestnut st., \$8,945.

Albuquerque, N. M.—Steel approach to east end of Alameda Bridge, Missouri Valley Bridge & Iron Co., of Leavenworth, Kan., \$5,169.

Clermont, N. Y.—Building a bridge over Roeliff Jansen hill: United Construction Co., Albany, at \$5,837; Canton Bridge Co., Albany, at \$6,090.

Snohomish, Wash.—American Pile Driving Co., Everett, for steel bridge over Snohomish River: 280-ft. steel swing span, 20-ft. roadway, 2 6-ft. sidewalks, center and end concrete piers, \$45,568; 304 ft. pile trestle, 20-ft. roadway, 2 6-ft. sidewalks, \$2,310, and 71-ft. steel trestle, 20-ft. roadway, 2 6-ft. sidewalks, \$7,916; total cost, \$51,924. Other bids: Everett Construction Co., Everett, \$67,687; Minneapolis Steel and Machinery Co., Minneapolis, Minn., \$59,217; International Contracting Co., Seattle, \$58,861; Pearson Construction Co., Seattle, \$69,397; Cowlitz Bridge Co., \$66,783; Lance & Peters, Seattle, \$86,538; Puget Sound Bridge & Dredging Co., Seattle, \$71,727.

MISCELLANEOUS

Baltimore, Md.—Bids will be received April 6, 11 a. m., for one Kindling street-cleaning machine; also for the use of three street sprinklers together with preparations for laying dust and destroying weeds.—J. Barry Mahool, President Board of Awards.

Malden, Mass.—Committee will inspect site for a public sanitary.

Greenwood, Miss.—Mayor Montjoy is in favor of constructing a garbage crematory.

Albany, N. Y.—The Board of Contract and Supply will advertise for a motor cycle for the Police Department.

Cleveland, O.—Council will appropriate \$99,000 for dredging in Cuyahoga River.

McKeesport, Pa.—The Finance Committee has appropriated \$6,000 for a new garbage furnace chamber.

Montreal, Que., Can.—The Montreal Harbor Commissioners have received notification of a \$6,000,000 loan from Ottawa, and will commence work on the plans for improvements on the water front.

CONTRACT AWARDED

Avalon, Pa.—Loech & Darling, Emsworth, disposal of garbage, at \$8,000 for two years.

BIDS RECEIVED

Norfolk, Va.—Constructing a bulkhead or retaining wall on both sides of The Hague: E. Cross & Son Co., \$8.40 per ft.; W. D. Murphy, \$8.68 per ft.; E. Taterson, \$9.60; Gwathmey Eng. Co., \$9.97½ per ft.; Wm. M. Miller, \$10.43; John Monk, \$10.85; B. M. Jones, \$11.73; Sandford & Brooks, \$13.90; E. M. Jones also bid \$10.37 per ft. under modified conditions, and Wm. M. Miller, \$11.38 per ft., to include steps at Fairfax and Pembroke aves., with floats for boats, filling in behind the walls and certain stone dressing, not required in the specifications.—W. T. Brooke, City Engineer.

Civil Service Examinations

The New York State Civil Service Commission, Albany, N. Y., will hold examinations as follows:

April 23, applications to be filed before April 16:—

Bertillon Clerk or Assistant Bertillon Clerk, State Prisons, \$720 to \$900.

Examiner of Municipal Accounts, Comptroller's Department, \$5 to \$15 per day. Men only.

April 30, applications to be filed before April 23:—

Architectural Draftsman, \$1,200 to \$1,800.

Assistant Electrical Engineer, \$600 to \$900.

Assistant Engineer, \$5.00 to \$6.00 per day.

Assistant Inspector of Gas, Public Service Commission, Second District, \$1,080 to \$1,200.

Bridge Designer, \$1,501 to \$2,100.

Bridge Draftsman, \$1,201 to \$1,500.

Junior Bridge Draftsman, \$900 to \$1,200.

Leveler, \$4.50 to \$5.00 per day.

Water Analyst, State Department of Health, \$720 to \$1,200.

Engineer in Wood Preservation—The United States Civil Service Commission will hold an examination on April 20 for the position of engineer in wood preservation, District 2, Forest Service. Application form 1312 may be secured from the commission at Washington or from the secretaries of the examining boards in the large cities, and must be filed prior to the closing of business on April 9.

PROPOSALS

VITRIFIED BRICK PAVING

Belleville, Ill.

The Board of Local Improvements of the City of Belleville, Illinois, will open bids for 3,500 square yards of street paving with vitrified brick, including excavating and curbing and a small amount of sewerage, at three o'clock in the afternoon of April 4th, 1910.

FRED J KERN, Mayor.

Atlanta, Ga.

BRICK PAVING

Amsterdam, N. Y.

Proposals will be received until 8 p. m., April 5, for furnishing all the materials and constructing about 4,500 sq. yds. fire-clay brick pavement on East Main st. and about 3,600 sq. yds. fire-clay brick pavement on Spring st. Each bid must be accompanied by a bond of \$500.

F. E. CRANE, City Engineer.

GARBAGE CREMATORY

Sealed bids will be received by the Board of Health of the City of Atlanta, Ga., until the 29th of April, 1910, at 5 p. m., for the construction of a crematory capable of destroying 200 tons of garbage in 12 hours. Address G. H. Branden, Secy., 101 Marietta St., Atlanta, Ga., for additional information and for specifications.

At the same time and place bids will be received for the construction of two crematories capable of destroying 100 tons of garbage each in twelve hours.

BRIDGE

Harrisonburg, La.

The Police Jury of Catahoula Parish will receive bids until noon, Monday, April 4, 1910, for the repair of Bayou Louis Bridge.

The Police Jury reserves the right to reject any and all bids. For further information apply to

H. W. BETHARD,
Secretary of the Police Jury,

MATERIAL FOR WATER WORKS

Miles, Tex.

Bids will be received by the Mayor and City Council at Miles, Tex., and by them publicly opened on Friday, April 1, 1910, for the purchase by the city of all the material required in the construction of a system of water works, being approximately 11,500 ft. 4 in., 3,000 ft. 6 in., 35 fire hydrants, 11 valves, one 350-gal. Triplex pump, one air compressor, power driven, one 50 h. p. gasoline engine. Specifications can be had by addressing

O'NEIL ENGINEERING CO.,
Dallas, Tex.

SUBMARINE PIPE LAYING

Marietta, Pa.

Bids will be received by the Marietta Gravity Water Co. until 12 o'clock noon of April 20, 1910, at their office in Marietta, Lancaster County, Pa., for laying a submarine line of about 2,200 ft. of 10-in. universal cast-iron pipe. Plans and specifications may be obtained at the office of F. H. Shaw, C. E., No. 314 Breneman Bldg., Lancaster, Pa. A deposit of \$5 must accompany application for plans and specifications.

WANTS

WANTED—Position as superintendent of Water Department; have had experience in reorganization of departments, and in installation and operation of pressure filters; recommendation from last employers; private water company and vicinity of Philadelphia preferred. Address 10A, Municipal Journal and Engineer. (11-13)

WANTED—To lease Trenching machine for water works job in South Central Nebraska. Address with terms to F. W. Keller, Nelson, Neb.

WANTED—A first-class cement Curb and Gutter and sidewalk finisher. Must be a good man, others need not apply. Must furnish references. P. O. Box No. 625, Oshkosh, Wis. (12-14)

WANTED—A first-class foreman for street paving. Must be a good, honest and reliable man. One who can get the work out. Must furnish references. P. O. Box No. 625, Oshkosh, Wis. (12-14)

WANTED—By a sewer contractor having full season's work, man to take charge of tunnel work in shale rock. A2, care Municipal Journal & Engineer.